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June
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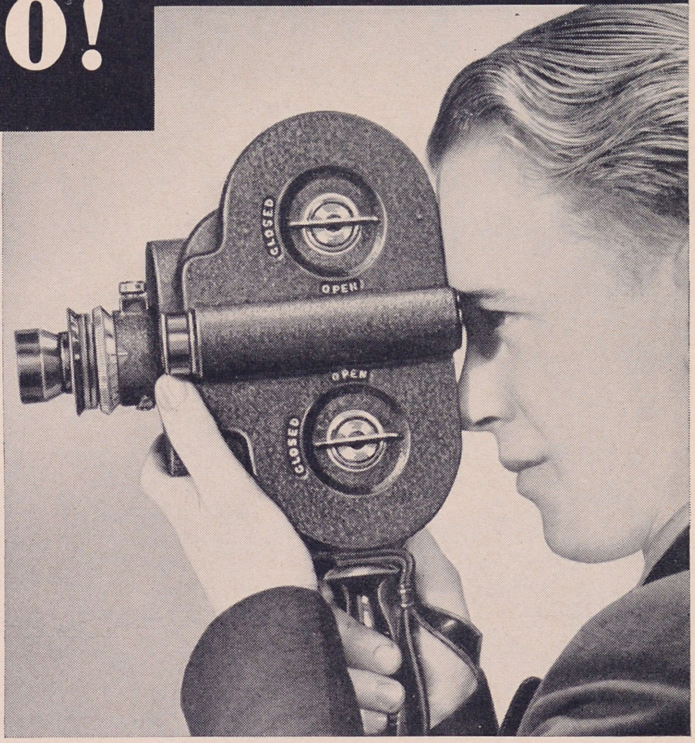

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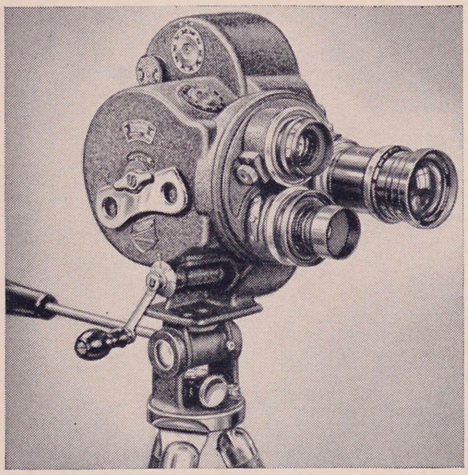

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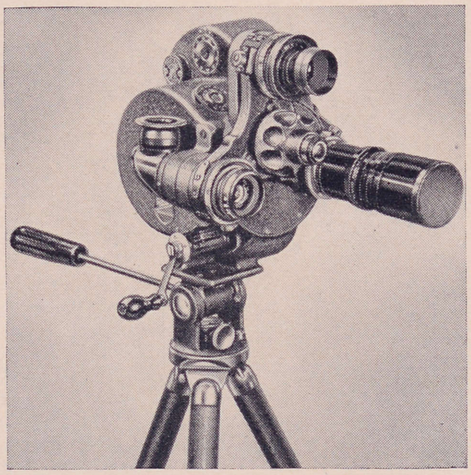

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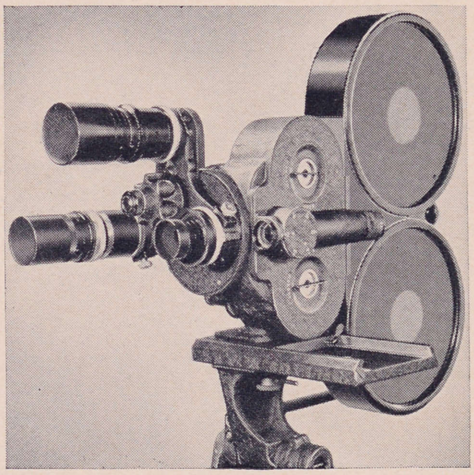

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THE MOTION PICTURE **CAMERA** MAGAZINE

VOL. 23 **JUNE, 1942** **NO. 6**

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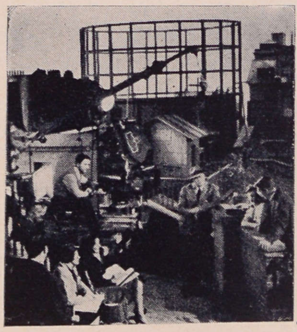

The Front Cover

This month's cover shows Leo Tover, A.S.C., filming a rooftop love-scene for Paramount's "Young and Willing." The background of the set is a particularly interesting combination of full-scale and miniature construction. Note placement of key-light on camera-boom. Photo by Talmage Morrison.

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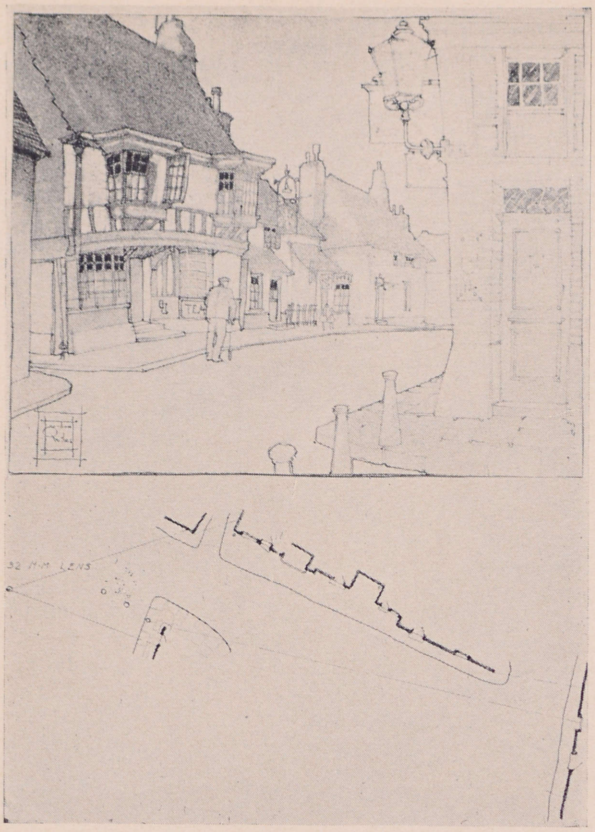
Visual Suggestion Can Enhance "Rationed" Sets

By JAMES WONG HOWE, A.S.C.



DURING the past few weeks we have heard a great deal about the recent Governmental order restricting the cost of new construction in motion picture sets to a maximum of $5,000. All of us have heard the opinion expressed that this will work a serious hardship on our major productions, and particularly that it will drastically reduce "production values" in many films of the type most popular today, perhaps even to the point where such productions can no longer be made.

To me this seems like an unduly pessimistic viewpoint. Certainly, these restrictions will cause many inconveniences. They will make us change many methods to which we have long been accustomed. But it does not follow that the change will be entirely for the worse, or that the results need to restrict either the visual quality or the dramatic variety of the product we put on the screen.

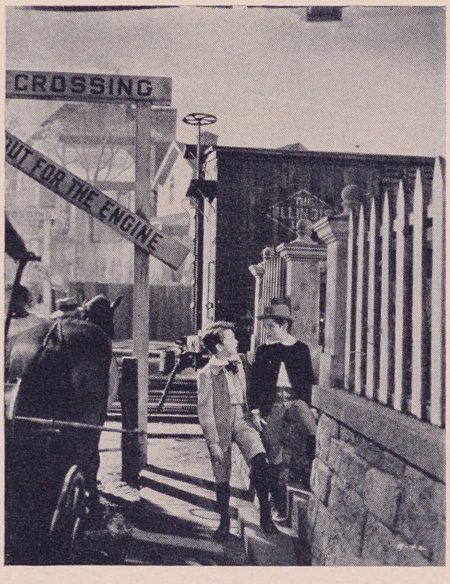
It does follow, though, that we will have to find new ways of doing many things. We will have to exert our ingenuity to make the camera *suggest* effects we can no longer build in literal actuality.

In this, it seems to me that we are strangely fortunate. The medium in which we work is one that makes possible literal reproduction, it is true: but it lends itself even more powerfully to suggestion, if visual-minded creative artists have a chance of working together to pre-plan what is placed before the lens.

Up to now, most of our major productions have suffered to some extent, at least, from the very prosperity which has made our industry great. We have all of us gotten in the habit of approaching a production with the thought that if the script calls for something, we might as well build it—and build it pretty completely, at that. And often, as most of us can testify from our own experience, we have been in the habit of building a good bit more than the script action really called for.

Not long ago, for instance, I had lunch with a 16mm. business-film producer who recalled a visit to a studio set some years ago. He was greatly impressed, so he said, with, the completeness of one very large set he visited—a night-club sequence for which almost the whole of a large and elaborate night-club had been constructed. Naturally, he watched for the release of that picture, to see how that impressive set looked on the screen. Imagine his amazement when he found the sequence had been cut down to the barest skeleton, played entirely in close shots of the principals at a table against a backwall, with nothing of the elaborate set around them showing!

Clearly, that sequence could have been made just as well without any of the elaborate and expensive construction which was actually involved. A table, a simple background flat, and perhaps a potted palm or a stock piece of railing, could have gotten the idea across equally well.



Comparatively little construction is needed to get this very convincing effect.

On the other hand, it has several times been my privilege to work with camera-minded "production designers" like William Cameron Menzies and Gordon Wiles. On such productions, there need be very little in either construction or film-footage which does not reach the screen in the release-print. At the very start—usually in a process of close collaboration between the designer, the director and the director of photography—the script is broken down into a series of sketches, each of which accurately outlines the visual aspects of one camera set-up.

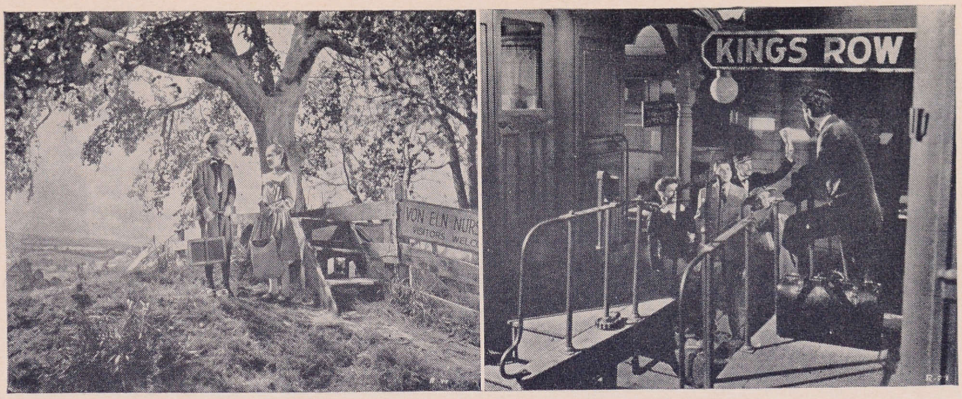
Studied in the proper sequence, these sketches provide a remarkably accurate prview of the production, before even an inch of film is exposed, or a single set designed. It becomes clearly evident how the visual aspects of the story will fit together. Weak spots can be strengthened, and non-essentials eliminated.

At the same time, it becomes clearly evident just what construction and how much of it will be really necessary. If, for instance, a given sequence "hangs together" properly in these pre-production sketches without recourse to reverse-angle shots, there will obviously be no need to provide for such angles when the sets are built. If a sequence "plays" better by avoiding the conventional one, two, three presentation of long-shot, medium-shot and close-up—eliminating, say, the conventionally establishing long-shot as visually or dramatically unnecessary, the set need not be built to "cover" that wider angle.

Working in this manner (and always presupposing an understanding cooperation between designer, director and director of photography) we can repeatedly find that we can get effects which are not merely "just as good," but actually *more convincing* by calling upon the camera's powers of suggestion rather than taking the easy—and expensive—route of literal accuracy.

A very interesting demonstration of this occurred in two of my recent pictures—"Kings Row" and my current production, "The Hard Way." Both of them had sequences laid in a railroad station, in which a principal player went away by train. In one picture, we handled the sequence on the stage, by visual suggestion; in the other, we handled very similar action by going on location to an actual station, with an actual train.

In "Kings Row," we built a section of the railroad-yard on the studio stage.



Both of these scenes from "Kings Row" were made on the stage, with a minimum of actual set-construction.

As we needed other parts of the yard for other action, we built quite a large set; but insofar as this particular sequence was concerned, we could have gotten the same effect with only a relatively small amount of construction. The part we actually used consisted of just the front of the station, and parts of two "prop" passenger-cars.

With only this actual construction, we could bring the train into the station by opening with a fairly close shot of our players on the station platform. The train would be suggested by means of appropriately-shaped moving shadow-patterns suggestive of the shadows of engine and cars, the light from the coach windows, and perhaps a puff of steam, apparently from the engine. Then the two "prop" cars would be wheeled into place in the foreground, as shown in the right-hand illustration on Page 247. Our departing hero then boards the train, and the cars start to move off. We can then cut to a shot of his friends on the platform as they watch him leave: here, we can either use another shot similar to the first one, with appropriate shadow-patterns suggesting light from the moving cars, or employ a dolly-shot in which the camera moves away from the watchers on the platform. In either instance, the effect is completely convincing.

In the other production, as I have said, we went to the trouble and expense of taking our company on location to an actual station, and using not only the station, but a real train.

On the screen, I have no hesitation in saying, the "Kings Row" sequence shot on the stage, with a minimum of actual construction and expense necessary, proved much more convincing than the real thing!

The ilustration on Page 246 shows another example of simple, inexpensive construction which suggests a great deal more than it actually shows. Getting over the impression of a railroad crossing in a small town, all that is actually necessary to produce this illusion is the little bit of sidewalk shown, the term of horses, the crossing-sign, the fence on the right side, a suggestion of tracks, one end and part of the side of a "prop" box-car, and a painted backing. With verry little actual construction, the camera can suggest the scene much more convincingly than if we went out and made the scene—with elaborate period settings—at a real grade crossing!

A good deal of important action in "Kings Row" took place on the set seen in the left-hand picture on Page 247. It suggests a sweeping expanse of countryside—yet all that was actually involved was a small mound of earth, the fence and stile, a tree, and a painted backing. Careful planning of camera-angles, compositions and intercut scenes did the rest.

Another thing we have had too great a tendency to overlook during these many years of professional prosperity is that due to the camera's one-eyed perspective, you need actually build only enough to suggest to that eye the *illusion* of the setting you want to establish—provided, of course, you can be very sure beforehand just what angles you and the director are going to need to record the action. For example, many of our ordinary interiors are built as three- or even four-walled sets when, for all we ultimately put on the screen, an L-shaped, two-walled set, or even a single wall with a well-planned set-piece or prop in the foreground, would actually suffice.

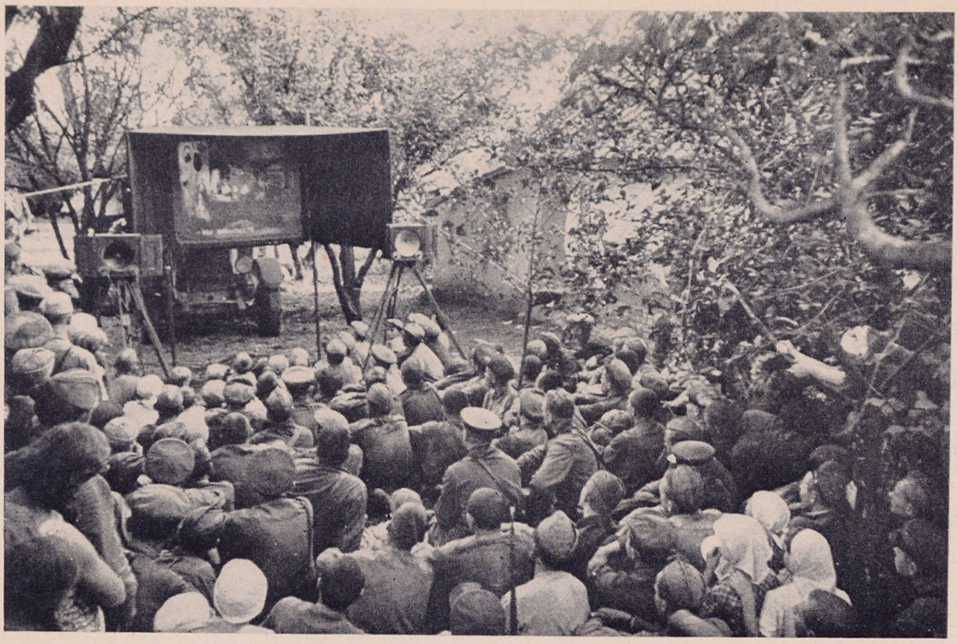
This point, I believe, is excellently shown in Gordon Wiles' sketch on Page 246. As the upper part of the sketch shows, the camera "sees" a very convincing street scene. Yet the diagram below shows that all the actual construction involved is that fronting the far side of the street, together with enough in the right foreground to suggest the corner of another row of buildings on the nearer side of the street. The diagonal camera-angle chosen, it will be observed, not only is such as to get the maximum effectiveness out of a minimum of actual construction, but also affords the director the greatest possible scope in staging his long-shot action.

It is a very serious mistake to assume that this type of production planning is of advantage only to the "big" productions. If anything, it can do more to justify itself on the smaller productions than on the big ones. Two films released during the past year exemplify this excellently. One of them was "Citizen Kane," a comparatively high-budgeted picture, which was without doubt the most discussed production of the season. In it were some sets—notably those representing Kane's palatial estate, "Xanadu"—which on the screen gave an unusual impression of spaciousness. Yet if you analyze them, most of them were constructed very simply, but with great care to actually build only what the camera needed to see to get its effect. One of the most memorable, for instance, consisted of little more than a staircase, a huge fireplace, and two or three well-placed pieces of furniture, yet it suggested the hugest of rooms. Gregg Toland, A.S.C. who photographed the picture, has stated that due to careful, camera-minded planning of such details, art director Perry Ferguson was able to build a total of 110 sets for "Citizen Kane" at a total cost of only $60,000. But it should be remembered that during the pre-production stages of planning, Welles and Ferguson had the very great advantage of having cinematographer Toland working with them for many weeks, lending his camera-minded imagination to their dramatic and architectural talents.

At the other end of the scale is an unpretentious little low-budget picture which was made at a total cost probably not much larger than "Citizen Kane's" budget for sets alone. Independently produced, this picture, "Forced Landing," enjoyed similarly careful pre-production designing by director Gordon Wiles and director of photography John Alton, A.S.C. Due to this planning, and in spite of its very low budget and a schedule of about 10 shooting days, this picture, on the screen, is reported to give an effect of a much more pretentious production.

In both of these extreme instances, it will be observed, three essential conditions were fulfilled. There was adequate opportunity for advance planning between the art director or production designer, a sympathetic and progressive director, and the director of photography. In both instances, actual set-construction was held to an absolute minimum, almost every bit of which ultimately reached the screen. Both pictures maintained a dramatically effective visual flow which was notably enhanced by this coordinated planning. And both, in spite of actually economical physical settings, reached the screen with an unusual amount of apparent "production value."

So can it not be concluded that if today's "rationing" of sets can bring to more of us a clearer appreciation of what this sort of planning can do to help us cut corners in production and build up production values in spite of these constructional restrictions, it might very well be turned into a lasting advantage—another step toward making better pictures, more efficiently?



Portable cinema giving a daylight show to Soviet soldiers close to the front. (Picture from Sovfoto.)

TECHNICAL PROGRESS OF RUSSIA'S FILM INDUSTRY

By GREGORY L. IRSKY

Chief Engineer of Soviet Cinematography

THE people of our country were always very friendly with the American people. It is quite natural that the Motion Picture Men of the Soviet Union should be among the most enthusiastic admirers of America, since the development of the motion picture industry in this country exceeds the accomplishments of any other country.

The motion picture men of the U.S.S.R., together with the rest of our people, are fighting for the defense of liberty and independence of their land, and for the liberty and independence of the people of the entire world.

However, that does not mean that the Soviet motion picture industry stopped functioning. On the contrary, our motion picture industry, which is greatly loved by the Russian people, has been successful in adjusting itself to the present war conditions, and goes on with its work.

A number of plants, studios and laboratories have been evacuated from the danger zones and re-established in new localities within two or three months. In this period of war we have already completed the building of a new film manufacturing plant and moved the entire equipment of an old plant to a safe place. During the war our motion picture studios have released fifteen new pictures, some of which have been shown in the United States.

Our renowned producers continue making pictures: Eisenstein is now shooting the film "Ivan the Terrible"; Ermler is working on the picture "The Heroic Defense of Moscow"; Iutkevitch is making "The Brave Soldier—Shveik"; Gerasimov, "Heroic Leningrad," and so on.

You can readily judge from these titles that the calmness and morale of the Russian people is at a high level.

The famous cameraman, Mr. Carmen, is taking part in air raids, dropping bombs on the heads of our enemies, and at the same time taking valuable motion pictures.

The cameraman, Gusev, has spent forty days with a guerilla detachment in the rear of the German lines. He has made excellent pictures and has set an example of heroism and devotion. During the war, the Russian cameramen have taken 400,000 feet of film at the front and have released 100 newsreels. In addition to this our studios have issued 150 shorts and 10 feature films on war subjects for the training of our army and civilians.

With your permission I shall now attempt to describe to you the progress of the Soviet Union motion picture industry.

Industry in its entirety is young in the Soviet Union, but the motion picture industry is the youngest of all industrial branches.

We have not yet, indeed, reached the high standards of the American motion picture technique. But if we consider the accomplishments of the last ten years, the significant progress of this young industry will become evident.

With the rapid development of the sound motion picture, ten years ago, it became evident to us that satisfactory results could hardly be expected with what means we possessed at that time. Neither were our studios adapted for producing sound film, nor were the acoustics of our movie theatres adequate to meet the requirements of the sound movies. Furthermore our laboratories did not have the necessary developing and printing equipment so that most of this work was done by hand.

The difficulties in making sound pictures were further aggravated by the lack of enterprises to manufacture noiseless cameras, special types of microphones, amplifiers and sound-recording equipment. The distribution of the available sound pictures was limited by the shortage in the necessary projection apparatus.

We had only one plant producing raw film and this one could not guarantee the quality of its product since the technological processes used there were old and outdated. Furthermore the facilities of this plant were very inadequate to meet the demand for positive and negative films.

We also lacked the necessary experience and personnel. The average age of our motion picture engineers, at the present time, is between 24 and 30 years. Hence, ten years ago there were no people that could undertake the solution of the multitudinous problems involved in the new development.

For the elimination of these difficulties, time was required. As yet we have not licked them all. However, the work done has laid the foundation for a speedy development of our motion picture industry. Unfortunately, the war has to some extent impeded the conversion of a whole series of very vital and already finished experiments into practical use. But I emphasize "to some extent," since our motion picture industry as well as the entire industrial structure of the Soviet Union is rapidly overcoming the effects of destruction brought about by our enemy's temporary successes. Another major factor in overcoming our difficulties is the enthusiastic and self-sacrificing assistance that our people are giving us.

In the past ten years, we have built a number of factories in Moscow, Leningrad and other cities, for the manufacture of various kinds of motion picture equipment. Our inventors and designers have built a few new types of news-

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* From a paper presented at the Spring Convention of the Society of Motion Picture Engineers, Hollywood, May 4-8, 1942.

reel cameras. This line of cameras were manufactured by us in our factories, and the results proved to be most satisfactory under various operating conditions.

In 1940 our factories had manufactured the first types of noiseless sound cameras, which are very convenient to operate.

A few years ago our factories started to manufacture automatic developing machines, and as a result, most of our studios switched from hand developing to machine procedure.

More than eighty languages are spoken by the vast population in the Soviet Union. A great number do not understand the Russian language.

Yet our films must be accessible to the entire population; therefore, eighty percent of our pictures are re-recorded in an average number of 30 to 40 national languages by means of dubbing. The actors from various republics are invited to view the picture—then they repeat the words in their own language before the microphone.

Difficulties were encountered in this phase of our work as well, for it is not an easy task to control the timing element involved in combining synchronization of voice within the sound-track allotted. We have designed special equipment which controls the synchronization of the dubbed voice and action on the screen. We have gained great esteem in this branch of cinematography, and we are proud to have overcome the many obstacles in our way.

For the last few years, our factories have been making sound recording equipment designed by the Russian Professor A. Shorin and P. Tager. Four years ago, simultaneously, we started to manufacture the RCA sound-recording systems.

The domestic supply of movie equipment and films is insufficient in quantity to meet the demand, so that in addition to the foreign purchases of equipment, most of it coming from the United States, we are endeavoring to increase our own production.

Our movie industry setup is quite different from what you have over here with the concentration of the majority of studios in Hollywood. Under the Soviet Union conditions, where great attention is being paid to the cultural requirements of the various nationalities of our land, we must have separate studios in all national republics which make up the U.S.S.R. Most of these sixteen republics already have such studios. The servicing of these studios, spread over great distances, is naturally difficult. This, however, does not interfere with their development. On the contrary, due to communication difficulties they have become more independent. At the same time the experiences of each studio is shared by all.

In 1938 we started to produce the RCA equipment PM-38 and to date a few dozen units have been made. We had some difficulties with the RCA mirror galvanometers, which were also experienced previously in the Hollywood studios. In order to eliminate these difficulties a noise-reduction, bilateral shutter is being substituted for the three-angle mask, and to improve the speech recording, which came out previously with considerable amplitude distortion, a compressor was put into use.

To obtain greater amplified stability in sound-recording and reproduction, as well as to improve the frequency-response, interference and distortion, we are using, to a great extent, the principle of feed-back amplification.

We are not satisfied altogether, as yet, with the quality of our sound recordings. The reasons for this are to be found in the low standard of our sound-recording films and in the shortcomings of the galvanometers, essentially in their amplitude characteristics.

Recently we have paid considerable attention to the problems of re-recording and have achieved the establishment of multi-channel recording.

As a result of the experimental work in the studios of "Detfilm" there has been considerable improvement in the electro-acoustical characteristics of the sound-recording channel.

We have begun the production of new microphones, but the quantities are yet insufficient to meet the demand.

A limited amount of testing and measuring equipment produced by us has enabled us to standardize our sound-recording procedures and controls.

The effect of improvements made can readily be seen in the following pictures: "Moscow Laughs," "Circus," "A Musical Story" and "Anton Ivanovitch."

The quality of the raw film is very essential in determining the final sound and picture quality. As I mentioned before, we have had one old plant for manufacturing raw films. While we were successful in obtaining satisfactory results under semi-laboratory conditions with a limited supply for a good quality film, the same could not apply after we went into mass production of film-stock. However, before mass production of film could be started, considerable research work had to be done for the development of new technological processes. A number of very interesting processes have been developed. For example, new methods of ripening and washing the emulsions, drying the film, making multi-layer emulsions, etc.

These new processes were not applied as yet under production conditions, but we intend to do this in the new plant recently built. This new plant was completed during the war, and is now producing film for civilian consumption as well as for the army. After the war we plan to produce film in sufficient quantities to cover our demands.

The improvement of the printing and developing procedures could not have been made while they were done by hand. The introduction of automatic mechanical equipment resulted in some improvement and we hope to still further improve this situation in the very near future.

We have already taken steps in this direction. A year ago we had made the first line of printing machines, and finished a machine for non-slip sound-track printing based upon RCA specifications. We have developed standard procedures for printing and developing and have produced some types of control and test equipment. The production quantity of this equipment is far from meeting our demands so that we have had to purchase and consider purchasing more printing machines in the United States.

Last year we were trying to improve the developing process and now have completed some experimental work on the turbulence of the developing solution. We hope that the work being done will enable us, in the near future, to improve the technique of printing and developing.

Up to recently our color films were limited to the two-color process. We have well-equipped laboratories at the Moscow and Kiev studios for two-color films. Some of our color productions, as for instance, "Grunia Kornakova," "The Fair of Sorochino" and others have been very well received.

In view of the fact that the two-color films made it impossible to utilize fully the potentialities of color, a few years ago we started experiments with three-color movies. The main work in this connection is carried on by the studios of "Lenfilm," "Mosfilm" and the Scientific Research Institute.

Due to lack of experience, we have encountered a number of difficulties, especially in carrying over the experimental work from the laboratory to the studio. We are working on several methods in order to find the best one.

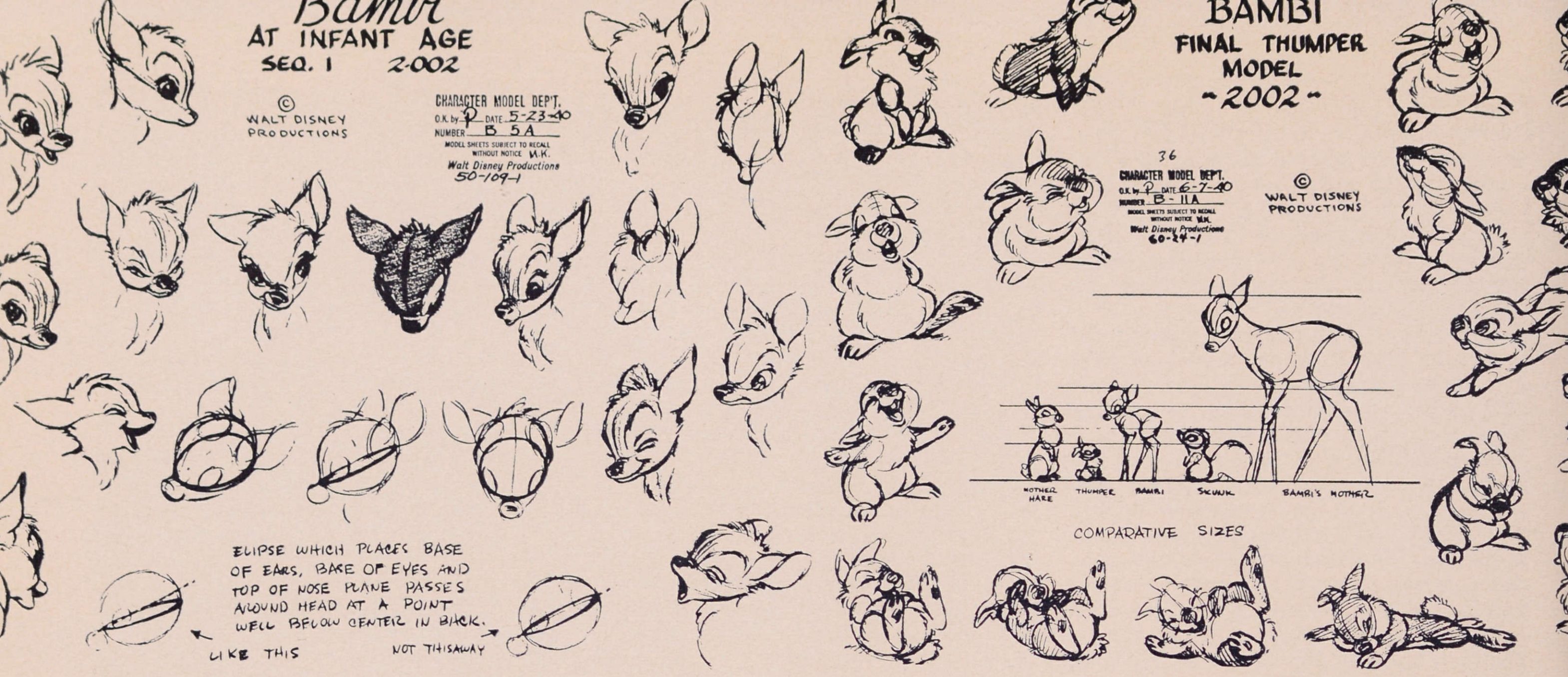
The best results were obtained with a special camera using three-color films. Eighty percent of our cartoons are made in color and we believe that the color cartoon is the first step in the further development of color movies.

It is our opinion from the limited experience gained in the production of color films, in spite of satisfactory results obtained by using three films, this method will not be acceptable on account of the bulky camera and complex printing and developing involved.

We believe that real progress in color movies will be attained only after means are devised whereby color films will be taken with a standard camera, using a single film, and after developing and printing procedures are simplified. This is easier said than done. We very well realize all the difficulties that will be encountered. In this connection we shall find it necessary to devise new methods for developing and printing color films and to rebuild some departments of the film manufacturing factories. We will have to solve our technical problems more rapidly than previously, because our people like the movies.

For the speedy solution of these problems we hope to obtain the assistance of some American concerns and special-

(Continued on Page 285)



Above are seen two "model sheets," which guide animators in keeping the drawing of cartoon characters constant.

Animated Cartoon Production Today

Part III — Animation

By CARL FALLBERG

THE problem of bringing a character to life by animation is a curious mixture of artistic and technical considerations. Both these factors are interrelated. The animator can't devote himself entirely to the artistic side without considering various technical factors that govern the screen presentation of the scene.

Animation is as much a knack as it is an art. An animator must be a good artist, but it doesn't follow that every good artist has what it takes to be an animator. The requirements of animation demand, besides drawing ability, a certain feeling for analyzing and portraying action, a good appreciation of story-values, a feeling for the fundamentals of pantomime, and a willingness to compromise artistic freedom to exacting technicalities.

The term "animation" is sometimes loosely applied to the entire cartoon industry, but its correct usage implies the actual, specialized work of the animator. For those who insist on definitions, animation is, specifically, the art of creating a series of drawings which, when photographed in a certain sequence and projected upon a motion picture screen, present the illusion of motion.

There's no great mystery about animation. It's based on a few simple, fundamental principles that are analogous to all phases of the process. The technique of animation, however, undergoes a constant series of changes and improvements. This technique is something that's more closely associated with the individual abilities of animators than with any set of technical principles. Improvements in animation come through the animator finding, by trial and experience, better ways to make his characters live.

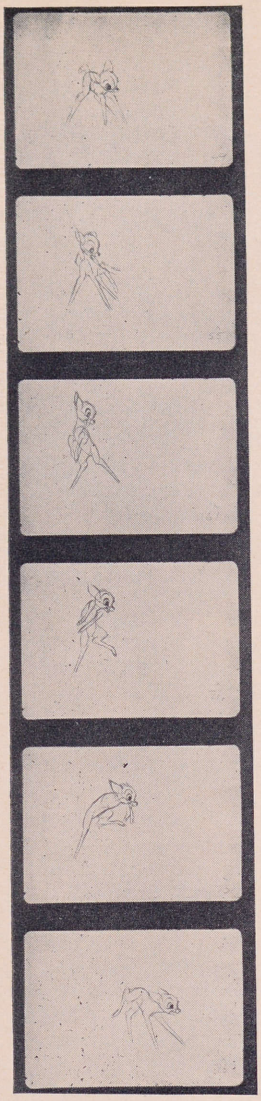
Many factors are concerned—draftsmanship, better coordination of action and timing, subtler characterizations, and more and more realism of movement. A parallel can be drawn between animation and the technique of the actor, for it's the animator who gives a cartoon character the actual screen performance. Whether the animator's drawings become simply moving drawings or whether they express the feeling of a living, convincing personality is entirely up to his knowledge of animation mechanics and timing combined with his feeling for pantomime and his appreciation of dramatic values.

It's hard work, and terrifically exacting, but it has an appeal that no other endeavor in the field of art can hope to equal. Animators will grumble about the scenes they're given to animate, complain about the confinement of the business, they'll say the work is hard on the eyes, gives them stoop-shoulders, is rough on the nerves, etc., but pin them down and they'll have to admit they like it—"Something fascinating about the damn stuff!"

The theory of animation is nothing new. Even the old Egyptians fooled around with moving drawings. Between the pillars of a certain temple in Egypt are arranged drawings of a man's figure in various stages of a salute. Exactly what that antediluvian animator of the Nile had in mind when he designed those drawings isn't clear, but the generally accepted story is that the figure represented a God, and when the Pharaoh galloped past in his chariot, he could look toward the temple and with the closely spaced pillars acting like a shutter, apparently see his God lift his hand in salute or blessing.

This primitive attempt at animation has no bearing on modern cartoon technique, but it indicates that attempts to analyze motion go a long way back in history and that the problem has always fascinated artists. Experiments along this line reached a fine peak of perfection in the photographic work of Eadweard Muybridge. Motion picture film hadn't been invented at the time of Muybridge's experiments, (1870) but it is doubted if the 16-frame a second exposure of the silent motion picture camera could have equalled the remarkable sharpness and clarity of his photographs.

Tangible efforts to create motion by a series of drawings pre-date the invention of motion pictures by many years. The Zoetrope, a toy which confounded and amused the kiddies and grownups of the middle 19th century, was an animated cartoon in a crude form. This gadget was simple enough—just a paper cylinder, on the inside of which was a series of drawings illustrating successive poses of a human or animal in action. Into the side of the cylinder were



cut slots. The whole thing was mounted on an axle. You held it up close to your eye, peeked through the slots, and spun the cylinder. As each slot flashed by your eye, it disclosed one drawing of the action, and the rapid superimposing of all the drawings gave the illusion of motion.

The same phenomenon that made the drawings of the Zoetrope move is also responsible for the movement of the animated cartoon, in fact, of all motion pictures—a peculiarity of the human eye known as "persistence of vision." This simply means that the retina of the eye retains an impression of whatever acts upon it for 1/30 to 1/50th of a second after the original impression is gone. When a succession of still pictures (as in motion picture film) is flashed on the retina, the rapid overlapping of retinal impressions due to persistence of vision results in the illusion of seeing motion on the screen.

The first person to think of hooking together the two elements, motion picture film and animated drawings was the late J. Stuart Blackton, back about 1908. However, Blackton's experiments were little more than glorified chalk-talks, and bore no resemblance, save in fundamental principle, to modern cartoons. It remained for Winsor McCay, in 1911, with his "Gertie the Dinosaur," to start the ball rolling in the direction of present-day animated cartoon technique.

McCay's method of working differed from modern procedure in that he redrew each complete set-up—character and background—over and over again for each frame of film instead of drawing the character on a sheet of celluloid and superimposing it over a single drawing of the background. The idea of tracing the characters onto celluloid was to pop into the head of Earl Hurd, another cartoon pioneer, a couple of years later.

So, as can be seen, McCay did it the hard way. However, he was blazing a trail into hitherto unknown cinematic territory, and the ordinary problems of animation mechanics and timing, which are second nature to the animator of today, were probably a bigger headache to McCay than the actual drawing of Gertie herself.

But it wasn't long after Earl Hurd hit upon the celluloid process that animated cartoon technique got into the swing of a standardized, simple production procedure and from then on it was simply a matter of detail improvements in technique. So today, Gertie's multitudinous offspring cavort about the screen with complete freedom, unhampered by any technical problems—at least so far as the audience can see.

The problem of animated cartoons today is to keep on developing fresh material and new slants, in order to avoid self-strangulation due to ingrown ideas.

The same problem of "new ways of doing things" holds true in the case of each individual animator, who must constantly be on the alert for ways to improve his technique in order to ward off creative stagnation. And it's usually nobody's fault but his own if he doesn't keep improving, particularly in a studio like Walt Disney's, where such progress is the keynote of production.

The animation of a cartoon is handled just as the shooting of a live-action picture, scene by scene, and not necessarily in sequence. Each scene is timed out for its screen footage before production, just the reverse of the procedure in live-action. This way of working generally makes for more control over all the elements of the picture, and provides a reasonably definite course for the animator to follow. Naturally, changes in timing which will shorten or lengthen scenes, may yet occur as the animator works out his action.

Several animators usually work on a picture, each handling a block of scenes in order. Sometimes, one animator's work will be scattered throughout the picture, but so standardized has animation style become that it's well-night impossible to differentiate between the work of various men. A complete coherence of style is necessary in order to compromise with the assembly-line method of cartoon production.

The problems confronting an animator when starting a scene vary according to the type of action. A scene containing dialog will require a different approach than one with straight action. And then again, there are different types of straight action—personality pantomime, and fast action. No two scenes are quite alike; each new scene the animator

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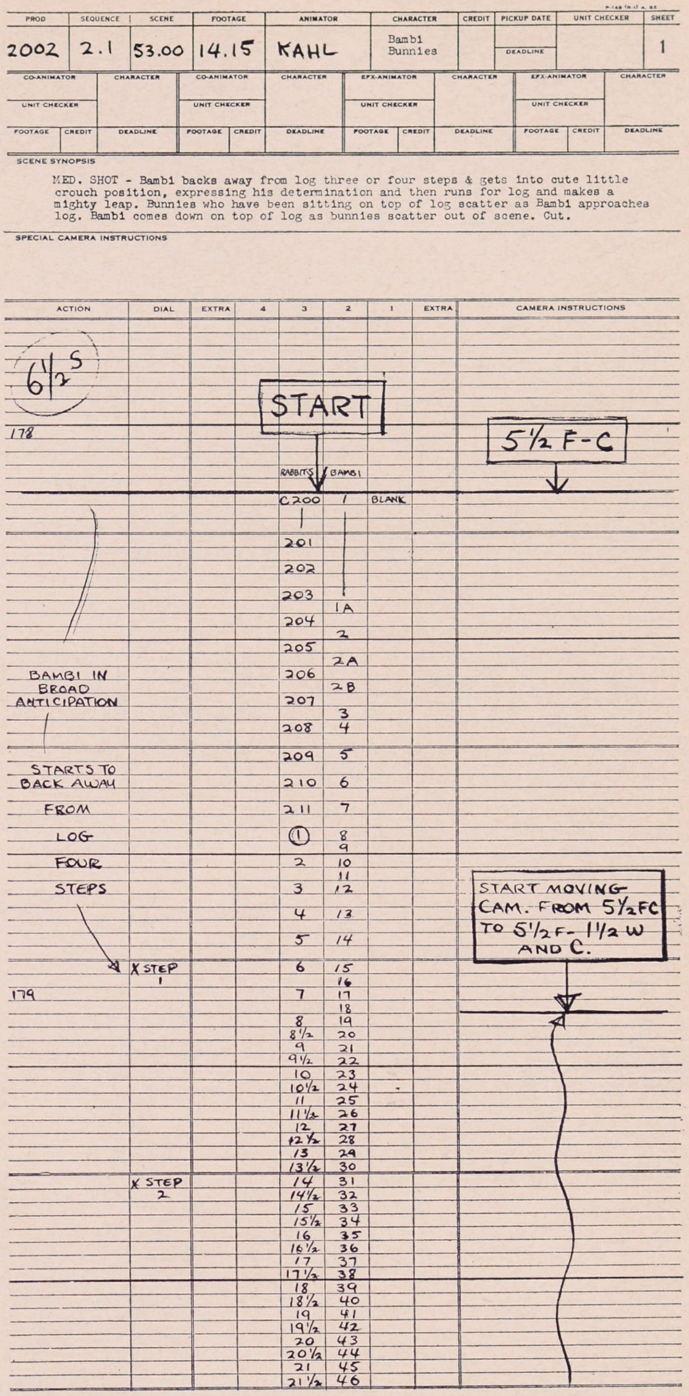

PROD	SEQUENCE	SCENE	FOOTAGE	ANIMATOR	CHARACTER	CREDIT	PICKUP DATE	UNIT CHECKER	SHEET
2002	2.1	53.00	14.15	KAHL	Bambi Bunnies		DEADLINE		1

CO-ANIMATOR	CHARACTER	CO-ANIMATOR	CHARACTER	EFX-ANIMATOR	CHARACTER	EFX-ANIMATOR	CHARACTER
UNIT CHECKER		UNIT CHECKER		UNIT CHECKER		UNIT CHECKER	
FOOTAGE / CREDIT	DEADLINE	FOOTAGE / CREDIT	DEADLINE	FOOTAGE / CREDIT	DEADLINE	FOOTAGE / CREDIT	DEADLINE

SCENE SYNOPSIS

MED. SHOT - Bambi backs away from log three or four steps & gets into cute little crouch position, expressing his determination and then runs for log and makes a mighty leap. Bunnies who have been sitting on top of log scatter as Bambi approaches log. Bambi comes down on top of log as bunnies scatter out of scene. Cut.

SPECIAL CAMERA INSTRUCTIONS

ACTION	DIAL	EXTRA	4	3	2	1	EXTRA	CAMERA INSTRUCTIONS
6½ S								
				START				
178								5½ F-C
				RABBITS	BAMBI			
				C200	1	BLANK		
				201				
				202				
				203				
					1A			
				204				
					2			
				205				
					2A			
BAMBI IN BROAD				206				
					2B			
ANTICIPATION				207				
					3			
				208	4			
				209	5			
STARTS TO BACK AWAY				210	6			
FROM				211	7			
LOG				①	8			
					9			
FOUR				2	10			
					11			
STEPS				3	12			START MOVING CAM. FROM 5½FC TO 5½F-1½W AND C.
				4	13			
				5	14			
	X STEP 1			6	15			
					16			
179				7	17			
					18			
				8	19			
				8½	20			
				9	21			
				9½	22			
				10	23			
				10½	24			
				11	25			
				11½	26			
				12	27			
				12½	28			
				13	29			
				13½	30			
	X STEP 2			14	31			
				14½	32			
				15	33			
				15½	34			
				16	35			
				16½	36			
				17	37			
				17½	38			
				18	39			
				18½	40			
				19	41			
				19½	42			
				20	43			
				20½	44			
				21	45			
				21½	46			

Left, these six key "roughs" drawn by the animator are the guide for "inbetweening" 1 foot 12 frames of action. At right is shown an exposure sheet outlining animation of scene from "Bambi" illustrated last month.

TRAINING FILMS IN THE U. S. NAVY

By LIEUTENANT WILLIAM EXTON, JR., U.S.N.*

THERE are four things necessary for victory in war, with respect to the armed forces. These four things are: 1. Numbers of men. 2. Equipment. 3. Training and 4. Spirit or morale. If you have enough men, enough equipment, if the men are sufficiently well-trained and if they have the right spirit, you will win. It is the Navy's job to build up its personnel to a sufficient number of adequately trained men of high morale. These men—manning the two-ocean Navy now built and building — can do for the United States what the Navy has always done—protect our shores by defeating the enemy.

There is no doubt that motion pictures have an important part to play in this program. So far as the Navy is concerned, motion pictures are of great assistance in the recruiting program, and undoubtedly help to maintain the Navy as a volunteer organization. Some of you may perhaps not realize that our Navy has never been manned by any other than volunteers. We are proud of that record; and the help that motion pictures give in recruiting assists us in maintaining today that unblemished record dating back to John Paul Jones.

With respect to equipment: equipment, after all, is the product of industry. It is made by men and machines, and is paid for by money. We know that motion pictures assist in raising the money by stimulating the sales of defense bonds and savings stamps. And we know that the motion pictures are used in many places to train workers. Many manufacturers of machinery have caused to be produced motion picture training films explaining the use of such equipment. Many industrial organizations employ motion pictures to help stimulate production.

The third of the necessities I have mentioned, however, is the principal subject of this present discussion, and that is the contribution of the motion picture film to Navy training. I need not remind you that modern warfare is technological warfare. It is men and machines against men and machines. Modern weapons and modern defensive equipment are constantly becoming more complicated. Before the days of firearms, men fought hand-to-hand, and there was little room for mechanical complication in the wielding of swords and pikes and spears and other such primitive instruments of warfare. The use of these weapons could be learned only through long years of practice. The man who was experienced with one of these weapons was a professional soldier—a mercenary—and a few such men could put to rout many times their number of unskilled and inexperienced peasantry or burghers who were not accustomed to fighting in this manner.

With the introduction of gunpowder, there was a tendency to equalize the human beings participating in combat, since a prominent noble dressed in the most expensive suit of armor might easily fall victim to the bullet of a common soldier. Castles which had stood dozens of sieges over hundreds of years, and which were the impregnable homes of prominent lords and monarchs, now fell before booming artillery pieces. But as wars progressed and cannon opposed cannon, complications were introduced to improve the effectiveness of the opposing pieces; and thus the handling of these weapons gradually grew beyond the skill of the average untrained man.

In the early days of our Navy, the range of battle was virtually point blank, and it took no tremendous skill to aim a gun. The principal skill in battle was that of the commanding officer, who, by maneuvering his ship, brought the other ship within range and exposed it to the deadliest concentration of fire. Today huge shells are sent crashing beyond the horizon, and the swift dive-bomber or high-altitude bomber is prepared to drop its deadly missiles within a few seconds after first being sighted. Under circumstances like these, the humblest sailor must—if he is to justify his place aboard a modern vessel of war—be extremely skilled in some useful battle duty. Whether he mans a gun or whether in some high spot he spots and helps to control the fire—whether down in the engine room he helps to deliver the essential speed and power—whether he ministers to the wounded, handles the communications, or takes care of the ammunition supply — whatever his battle station, he must perform it with the utmost efficiency, since the sum and total and result of the efficiencies of all the participants in battle is the efficiency of the vessel. Nothing less than maximum efficiency can be justified in battle, and such efficiency cannot be attained when the personnel is not trained to do its utmost.

However, a modern ship of war, and even a modern warplane, spends a very small fraction of its life actually in battle. In fact it spends a minor fraction of its time even preparing specifically by practice for battle. A large part of the time is spent in maintenance, and in the pursuits that sustain the life and health of the members of the complement of the ship. The members of the gun-crew, for instance, spend far more time at maintaining the guns and seeing to it that the equipment is in perfect condition, than they do in firing it. All machinery must be maintained and all the intricate equipment for the control and spotting of gunfire, for communication, for detection of aircraft and undersea vessels, and for navigation, must be maintained.

In times of peace, a new recruit was sent to a training station for several months of preparation for duty at sea. He was then placed aboard a ship, where the petty officers above him as well as his commissioned officers would have plenty of time to whip him into shape. He would learn from others by doing, and his drag upon the efficiency of the vessel was not of very great importance. In times of war, however, such as the present, a vessel newly commissioned, and taking aboard a crew which has never worked together before, may find itself in contact with the enemy in a matter of days. Obviously a wholly green and untrained crew cannot be allowed to go forth in a war vessel, and yet with naval personnel expanded as it has been, many-fold in a very brief length of time, the problem of securing trained personnel—or of training personnel as secured—is a tremendous one. As the number of war vessels in commission increases, the experienced skilled personnel is diluted—being scattered among the large number of vessels. As more and more ships are required for active duty at sea, fewer of them become available for training purposes.

Thus, though personnel is being expanded beyond all precedent, and the need for training was never greater, there is a smaller number of skilled personnel available to conduct training, and there is less equipment available for use in training. Further to complicate the situation, in a war like the present, there is an astounding development of new techniques, of new procedures, new inventions and developments, which require the training of thousands and thousands of men in the use of instruments about which at first perhaps only a very few experts have knowledge.

The training problems created by these situations are tremendous; and in their solution, visual aids are expected to play and are already playing a very important part. I might observe here that one of the most important characteristics that is desired in naval training is standardization. Men who are graduates of the United States Naval

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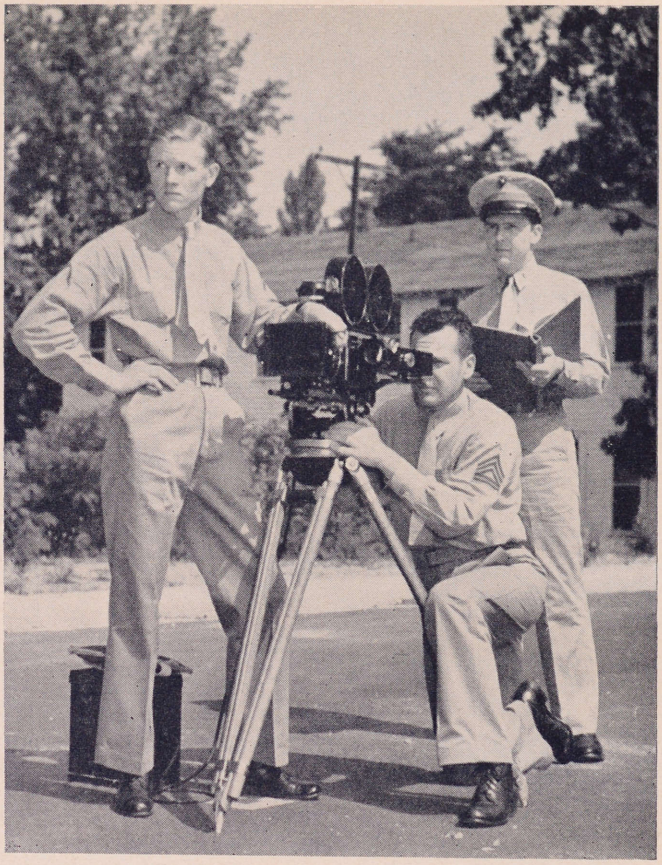
* From a paper presented at the Spring, 1942, Convention of the Society of Motion Picture Engineers.

Academy have received standardized training, and thus an officer aboard one American war vessel can generally predict what an officer aboard another American vessel will do under a given set of circumstances. This standardization of training is of great value. Its value extends down into the field of the skilled enlisted men, since the interchangeability of men is of importance to the efficiency of the fleet; and a man who has learned to do a thing a certain way on one ship and is expected to do it another way upon another ship will not be giving to the Navy the fullest benefit of his experience. If men are taught by other men, there is always the tendency away from standardization, since each individual has his own idea of what should be stressed and how things should be done. However persistently the Navy itself may foster standardization, there is a trend away from standards where teaching is done by individuals.

Audio-visual aids, however, help to standardize. Since they can be used throughout the Naval service and since they will appear identically to all who see them, they have the most helpful effect in standardizing training. Furthermore — and this is extremely important—audio-visual aids can standardize training on a high level rather than on an average level. It cannot be denied that there are good teachers and bad teachers. Some men are skillful in training others, and some men are not quite so skillful in training others. If audio-visual aids to training are prepared by the best available experts, and are properly developed to have maximum value for training purposes, then training through them can be standardized on a very high level. It is hoped that as the use of audio-visual aids in the Navy develops, this will be increasingly true; and the Bureau of Navigation is extremely desirous of setting and maintaining a high standard for the visual aids produced for use in Naval training.

I would like to stress the point that visual aids to training are not entertainment. They are not intended to be entertainment, and they should not be considered as in any way related to entertainment. The mere fact that an audio-visual aid may be a motion picture should not cause it to be confused with motion pictures produced for entertainment purposes. The motion picture is a use of a photographic technique which can serve many purposes. The fact that it has served the purpose of entertainment so greatly should not influence—or better, say, should not impair its use for training purposes.

There is a tendency on the part of some of those who attempt to produce films for training purposes to make these films approximate films for entertainment. They introduce the films with music, and they have music arising many times during the course of the film; and furthermore they introduce elements of incidental comedy, and in other ways they try to make the film—as they would say—"palatable."



Many Navy training films are made by service camera units like this Marine Corps camera crew.

This is a gross abuse of the principle of the training film. A training film should be regarded as a textbook. It should be easy to understand, it should be clear, it should be simple, it should introduce no unnecessary complications; but there is no obligation on the part of a textbook to be amusing or ingratiating. Furthermore, the proper use of a training film will usually involve its being repeated. Most of the training films that I have seen can best be used by showing them a number of times—perhaps giving the men an opportunity to ask questions or to be lectured to between the showings.

A fairly complicated film, which gives the men only a rough idea of the subject the first time it is shown, may be very simple and easy to understand after it has been shown several times, and all the questions have been answered, and the subject has been explained. A film which is well conceived and executed will be just as interesting the fourth or fifth time it is shown as the first time, and a new instructional benefit will accrue from each showing; but a film which is made to be entertaining is very likely to look extremely silly the second time it is shown—and it thus defeats its purpose.

Those of you whose experiences have been primarily in the field of making films for entertainment should bear this very much in mind if you venture into the field of training films. No doubt many of you will, as this medium achieves greater and greater use in civilian as well as in naval and military training activities.

The Bureau of Navigation has a Training Division. This Division has cognizance over all training of Naval personnel, officers and men. We conduct an extraordinarily large number and diversity of training activities. We run the Training Stations to which the newest recruits are brought for their first experience with the Navy after the Recruiting Station. We run the various schools where enlisted men are taught the trades which make them experts in a very large number of fields. We train the Navy's officers at the U. S. Naval Academy at Annapolis and at the Naval Reserve Officers Training Corps Units in the many universities, and at the Reserve Midshipmen Schools. We conduct the Postgraduate School, and the Naval War College, at which the higher officers receive advanced training. We conduct schools that teach about Diesel engines, and underwater sound, and radio material, and torpedoes, and submarines, and gunnery and all the other specialties that modern Naval warfare involves.

It is a part of the task of the Bureau of Navigation to find for these many activities the audio-visual aids which will help the officers commanding these schools, and their staffs, to do their jobs as well as possible. The audio-visual aids sent to these many activities come from a great diversity of sources.

Officially, the agency for the procurement of photography in the United States Navy is vested in the Bureau of Aeronautics; and if the Bureau of Navigation wishes to procure a film to send to a naval activity, we request the Bu-

(Continued on Page 281)

Choosing Film Materials For Professional 16mm Production

By JAMES A. LARSEN, JR.

With proper development, direct 16mm. negative-positive like this is thoroughly practical for commercial production.

THE 16mm. producer has a greater variety of film materials with which to work than does the 35mm. producer. In 16mm., black-and-white production can be done in either the negative-positive system familiar in 35mm. practice, or in the reversal-original-dupe-negative-positive system. In 16mm. color, reversal-type Kodachrome is of course used, with full-color release-prints made by contact printing onto a special Kodachrome duplicating stock. Where desired, either for economy or because of the inherently fine grain-quality of Kodachrome's dye-image, black-and-white reversal duplicates or dupe negatives can be printed from a Kodachrome original, and in instances where 35mm. prints are needed, monochrome or color enlargements from a 16mm. Kodachrome original are already being used commercially.

The choice of film materials for 16mm. production depends on quite a number of factors including, in addition to the familiar one of emulsion characteristics, such considerations as the uses to which the production is to be put, the type of equipment and handling the release-prints are likely to receive, and so on.

For the type of production for which negative film is best, several emulsions are available in 16mm. film. Eastman Kodak makes a slow, fine-grain emulsion called Cine-Kodak Panchromatic Negative film which is excellent for exterior shooting, but too slow for interiors. This film has about the same characteristics as Background-X in 35mm. Their Super-XX Panchromatic negative is much faster and gives excellent results on interiors. It has satisfactory grain characteristics if properly exposed and developed. Eastman will also supply the familiar Plus-X emulsion in 16mm. on special orders if a full coating (about 20,000 feet) is ordered at one time.

Agfa Supreme 16mm. negative is slightly slower and somewhat finer in grain than Eastman Kodak Super-XX, and is suitable for either interiors or exteriors. Agfa also makes a 16mm. Infra-Red negative emulsion for effect-shots and night-effects.

Dupont's "Superior" negative is available in 16mm. in two types. Very similar to the moderate-speed 35mm. "Superior 1" is the 16mm. "Superior Type 314," which is an excellent film for exterior shooting. Comparable to the faster "Superior 2" in 35mm. is the 16mm. "Superior Type 301," which is an excellent emulsion for most normal interior and "production" camerawork. At present, DuPont's super-speed 16mm. product (Type 302) is available only as a negative material, though the other two types mentioned may be used as either negative or reversal films. The grain characteristics, contrast and latitude of these DuPont films are exceptionally good and there is the added advantage that DuPont maintains their own laboratory for processing their film as a negative, and for making contact prints.

As mentioned in the discussion of frame-line shift due to film shrinkage, it is always best to use film of the same manufacturer, of the same age and from the same batch or emulsion number for a particular production if possible. For professional results, it is not advisable to shoot part of a production on DuPont and another part on Eastman or Agfa film. If the producer will choose the film which best suits his requirements and sticks to it, he will get more consistently good results. And even when using one emulsion, it is advisable to attempt to get film all of the same batch or the same emulsion number.

For the type of production in which reversal film is best, there is less choice of emulsion than there is in negative emulsion. Eastman Kodak makes three reversal films; Super-XX, Super-X, and Cine Kodak Safety Reversal film. Super-XX Reversal is similar in properties to Super-XX negative film. Super-X Reversal is slower, finer grain and comparable to Plus-X in 35mm. Cine Kodak Safety Reversal film is an extremely fine-grain and photographically slow emulsion which is excellent for exteriors but too slow for interiors. This emulsion is used extensively for making reversal sound-tracks and for printing black-and-white work-prints from Reversal or Kodachrome originals. It is panchromatic and gives good black-and-white reproductions from color originals.

Agfa Triple-S Superpan Reversal Film is a very good reversal emulsion for interior shooting but is so fast that a neutral density filter is almost a necessity for exterior shooting. Agfa also makes a slow reversal emulsion comparable to the Cine Kodak Safety reversal film.

As mentioned in the discussion of nega-

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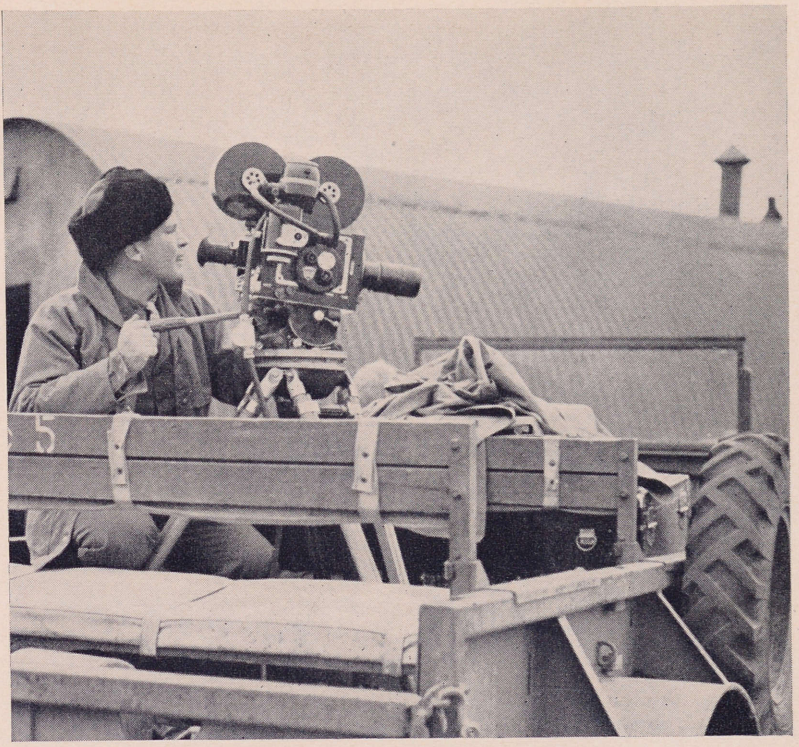

A.S.C. and Academy to Train Cameramen for Army Service

UNCLE Sam needs cinematographers for active service on all the far-flung battle-lines upon which American troops are fighting this war—and Hollywood's top cinetechnical experts are joining forces to train them! United in this ambitious project planned to transform hundreds of amateur and semi-professional cinematographers and still photographers into trained army cameramen are the Research Council of the Academy of Motion Picture Arts and Sciences, the American Society of Cinematographers, the International Photographers Local 659 of the I.A.T.S.E., and the technical experts of the major film-manufacturing companies.

The course will consist of six weeks of intensive practical instruction, largely in night classes in various major studios, but culminating in daytime sessions of actual field work under the guidance of the industry's outstanding exterior specialists. Students who successfully complete the course will be assigned to active service as members of the Signal Corps' Photographic Section.

The first class will start its instruction June 1st, and new classes will be formed weekly thereafter. Enrollment is open to American citizens from 20 to 45 years of age who, if accepted for training, enlist for Field Service in the Army's Signal Corps Reserve. The course is open not only to studio workers with previous photographic experience as professionals or amateurs, but to seriously interested amateur and semi-professional cinematographers and still photographers as well. No fees or tuition expenses are involved, but some basic knowledge of photography and a sincere interest in picture-making are requisite.

Each of the three organizations involved has its definite part to play. The Research Council, due to the close contacts already established with the Signal Corps through the production of many Army Training Films, is to serve as the coordinating agency and to provide liaison with the Army. The American Society of Cinematographers is to have charge of instruction in cinematography, and members of the A.S.C., including many who saw active service in the last war as Army or Navy cinematographers, will serve as instructors. Top-flight operative and assistant cameramen and film-loaders, members of Local 659 I.A.T.S.E., will provide instruction in camera operation and maintenance, and other members of the same organization will give instruction in a similar course in still photography. Experts from the Hollywood technical staffs of the Eastman and DuPont film organizations will instruct in basic photographic technology.

Chairman of the committee in charge of the cinematography training school is Fred W. Jackman, President of the A.S.C. Serving with him on this committee are Emery Huse, A.S.C., Hollywood Technical Representative of the Eastman Kodak Company's Motion Picture Film Department and President of the Society of Motion Picture Engineers, Hollis F. Moyse, A.S.C., DuPont's cinetechnical expert, and C. Roy Hunter, Camera Chief at the Paramount Studio. The active instructional staff has not as yet been completely named, but it will include some of the industry's foremost cinematographers, experts particularly in difficult location and field camerawork. Due to the exigencies of production, it is probable that there will be some rotation of instructors.

Speaking about this training plan, Chairman Jackman says, "This is the first time in its twenty-three years of existence that the A.S.C. has lent its approval—much less its active support—to anything resembling a course in cinematography. It does so now because the increasing importance of cinematography as an adjunct to modern "all-out" warfare has created a demand for trained manpower utterly beyond the capacity of the professional industry to provide.

"Today, a motion picture section is an integral part of every military unit in the field, and with our rapidly-growing Army engaged on almost every continent, cinematographers by the hundreds are needed. When you add to this demand by the Signal Corps the parallel needs of the Air Force, the Navy and the Marine Corps and other branches having their own cinematographic sections, you reach an immediate total greater than the entire number of professional cinematographers in the country.

"Fortunately, this country has a great and untapped reserve of capable cinematographic talent among the amateurs and semi-professionals—men who though they may not have made a career out of photography, have yet attained great skill with their 16mm. and 8mm. cameras making films for pleasure, and often for industrial and educational purposes as well. They require only a minimum of training to enable them to serve their country excellently in the field with 35mm. equipment.

"We are determined that the training they receive shall be of the best, and that it shall avoid the many mistakes that were made in similar training projects during the last war.

"None of us are so optimistic as to imagine that six brief weeks of instruction—even by the world's greatest experts—can take the place of the years of practical experience which alone makes a trained studio cinematographer. But by eliminating all non-essentials, and concentrating on strictly practical essentials under the tutelage of the industry's outstanding specialists in this type of work, we are confident that we can train men who already have a good grounding in practical amateur or semi-professional cinematography into camera-carrying soldiers who can be de-

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Aces of the Camera

XVIII:

Farciot Edouart, A.S.C.

By WALTER BLANCHARD

THE men who do Hollywood's special-process photography seldom have a chance to bask in the limelight of publicity. You see their names on the credit-titles of pictures, lurking behind some cryptic notation like, "Special Photographic Effects by So-and-So," but unless you're right in the industry, you don't get much of a chance to find out what they do, and still less to learn what they look like, or what sort of people they really are. Yet among them are some of the greatest aces of the cine-camera—and without their unheralded contributions, many a modern production could never have been made.

A typical example is Farciot Edouart, A.S.C. Officially, he's the Head of the Transparency Department at the Paramount Studio—which means that he's one of the industry's top-ranking specialists in the projected-background process, with a record of twenty-one years of specialization in "trick" and special-effects camerawork behind him, all of it with Paramount or its several corporate forerunners. As a matter of fact, throughout his twenty-seven year career in the industry, he has never worked for any other organization than Paramount except for the period he worked for Uncle Sam as a cinematographer during the last war. Then, he went in as a buck private—and emerged with a major's commission!

Farciot was born in California, where his grandfather was a portrait photographer, and his father a portraitist, as well. Around the turn of the century, the junior Edouart came to Los Angeles, where he established a branch of the family's fashionable portrait studio during one of Southern California's early "boom" periods. When this boom collapsed, Edouart closed his studio and entered commercial photography, first for the Gas Company, and later in the office of the County Assessor—a position which he held until very recent years. Meantime, he kept a studio and darkroom in his home, and continued with his portrait work on the side.

Small wonder it is, then, that young Farciot absorbed photography all through his childhood and youth; as he puts it, he was weaned on developer.

And it is no wonder, either, that when the time came to select a job, he should choose the most modern form of photography—the cinema. In 1915 he went to work at his first job—as an Assistant Cameraman in the Realart Studio in Hollywood, a subsidiary of one of the firms which finally became today's Paramount.

During the succeeding two years, he worked his way up the cinematographic line until America entered the war. Then he enlisted, placing his specialized knowledge of photography as it related to color, color-rendition and filtering (of which he had made a special study) at the disposal of the Camouflage Division of the Army Engineers. Examined for a commission in this service, he passed highest among a group of sixty specialized experts, and with his commission assured, boarded the train for Washington.

And while he was on that train, his official papers also enroute by rail (as there was no air mail in 1917), a departmental reorganization took place in Washington. All of the Army's photographic work was centralized in the Signal Corps—and when Edouart arrived in Washington, he found himself without rank, as military red tape prevented his transferring to the Signal Corps with the rank he had been promised by the engineers!

So he enlisted in the Signal Corps as a buck private, and was sent to the Signal Corps' famous school of cinematography at Columbia University. Eleven weeks later he completed the

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THROUGH the EDITOR'S FINDER

WHETHER it's the result of influence or mere coincidence, it's always gratifying to an Editor to see some suggestion he has advanced turned into actuality. When we wrote last month's editorial, suggesting that since the Army and other services were in need of cinematographers, quickly, and in greater quantity than the professional industry could supply, they'd find a vast supply among the nation's 16mm. amateurs, we didn't know that anything like the present A.S.C.—Academy Training Plan for Signal Corps cinematographers was in the wind. We don't presume to take credit for it—but they're doing precisely what we suggested, only, we believe, doing it even better than we could have suggested.

So we make bold to offer another suggestion along similar lines. We wonder if some way could not be found to transfer capable amateurs and 16mm. professionals who are already in the service, either by enlistment or draft, into the Signal Corps where with this present training, their previous experience could be put to useful work? Some of them are in various branches of the Army and Air Forces; others in the Navy and Marine Corps. Couldn't some provision be made to transfer them to the photographic branches of their respective services, and send them through the training course so that the years they're spent behind movie cameras could pay the Government a profit? After all, the best of cinematographic training only polishes an instinct for cinematography which has to be born in one; and experience has shown that you can no more make a photographer out of a non-photographer than you can make a combat pilot out of a man who has no aptitude for flying.

Obviously, there must be plenty of military technicalities in the way of effecting such transfers—but in the interests of efficiency in this admitted emergency, wouldn't it be worth while to see if it couldn't be done?

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AMERICA'S amateur movie-makers have a very great deal to be thankful for at any time, but now especially. During the decades of peace in which movie-making has grown to the the status of a top-ranking hobby for millions, we've been free to train our cameras on anything that pleased our fancy. Even in active military posts, we've been amazingly free to use our cameras as we chose, and elsewhere—among the railroads, airports, harborworks, and innumerable places which in other countries have long been strictly-guarded military secrets, American cineamateurs have been free to use their cameras as they wished, so long as they didn't act foolishly and get hurt. No secret police have trailed us—no bigoted governmental censors have confiscated our cherished reels. Even when we have trespassed on private property—such as privately policed railroad-yards, and the like—the majority of officials have winked at us, and merely said, "Don't get hurt, Buddy," instead of dragging us off to jail, as they had perfect right to do.

Today—even in wartime—we've amazing freedom to take pictures, so long as we don't train our lenses at things vital to the Nation's War Effort.

Nowhere else in the world, in either war or peace, does the photographic amateur enjoy such freedom to follow his hobby. It's part of the American Way of Life, of course—but it's a privilege nowhere else enjoyed . . . one of the American liberties we take for granted, yet which would amaze people of many other countries.

It seems to this writer that this is a privilege which is worth much more than mere lip-service. Many of our camerists, professional and amateur, are already in uniform, fighting to preserve this and the other liberties under which we live. Those of us who remain at home can do our part, too. And since this very special privilege is so intimately connected with our hobby of picture-making, why can't we tie it in closely with that hobby?

Why can't we, as our way of saying a tangible "thank you" for the freedom our cameras have been accorded, make it a policy to set aside a definite sum every time we buy a roll of film, and invest it in War Savings Stamps?—Suppose, for instance, a nominal figure like 10 per cent of the cost of the film; if you shoot Kodachrome in 8mm., for example, it would mean buying 30 or 40 cents worth of stamps for each roll of film; if you shoot 16mm., you'd buy from 50 to 90 cents worth, depending on the type of camera you use.

In itself, this wouldn't be much—hardly more than the price of a couple of packs of cigarettes or a highball or so. But in the aggregate—multiplied by the tremendous number of rolls of film America's cineamateurs shoot each year—it would form a really worthwhile contribution to the War Effort. How about it?

•

EVERY so often we hear that this foreign nation or that one has made threatening gestures toward Hollywood because they felt one of their nationals had been held up to ridicule in some Hollywood-made movie. Many of these protests, we realize, are based on too great a national pride, and perhaps upon a lack of understanding of Yankee humor. But sometimes we can sympathize with these "good neighbors" who feel Hollywood has made them foolish by using a comedy character from their land. Every so often, we see in a movie a cameraman—maybe a cinematographer, maybe just a still photographer. And we can't ever remember a time when one of these characters has been played "straight." Always, the man at the camera is put there for a laugh: maybe he's a fluttery, la-di-da portrait artist; maybe he's a hard-boiled ape of a movie "lenser;" sometimes—as in one recent picture—he's a bibulous paddy who keeps a stock of whiskey in bottles that should contain developer. In almost every case, he's a specimen who couldn't hold down a studio job for ten minutes.

We hope we aren't touchy, nor as prudish as our maiden aunt who felt personally affronted by Jack Benny's skirted antics in "Charley's Aunt," and left the theatre to prove it. But we would like—just once—to see a cameraman in a movie portrayed as neither a buffoon nor a boor, but as what he really is: a generally well-educated gentleman with a job to do—a professional job, which requires specialized knowledge, skill and training no whit behind that expected of such a "professional man" as a doctor or lawyer. For that matter, you could take a group of representative directors of photography, and put them in the midst of an equally representative group of doctors, lawyers or business-men, and in appearance, manner, or speech we would defy you to tell which is which. Why not show them that way on the screen—at least occasionally? Isn't it really to the industry's discredit to keep on fostering the impression that one of the most responsible jobs in production is filled always by men so uncouth, ill-educated or besotted that they're only good for a low-comedy laugh?

•

THE action of the Short Subjects Branch of the Academy in inaugurating a monthly press showing of the month's best shorts is a step toward recognition of a branch of production which has gone too long unrecognized in these days of double bills and "B" pictures. Dramatically, technically and artistically the short-subject can be and should be the proving-ground for ideas, techniques and personalities later to be brought to more expensive fruition in features.

The first program shown had its shortcomings—notably, perhaps, too great a sameness in the material. But even so, it was the birth of a new idea. Let us hope that these monthly showcasings will advance the cause of the short-subject, and bring it to the point where those who make and sell them will realize that they need not be the unrecognized half-brothers of the big pictures, but—if properly produced—can be as one shorts producer used to say, "The Spice of the Program."

A.S.C. on Parade

A surprise visitor this month is **Al Gilks, A.S.C.,** who, as **Lieutenant Gilks, U.S.N.,** has been on active service with John Ford's unit of the Navy Photographic Section since early last fall. We can't say much about what **Al's** been doing, but reports we get from other A.S.C.-members in the service indicate that he's been places in a big way, and is doing one whale of a job for Uncle Sam.

•

John Alton, A.S.C., is directing the photography of Republic's big special, "Icecapades"—his last studio job, we hear, before being sworn in as **Captain Alton,** Signal Corps, U.S.A.

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And yachtsman **Verne Walker, A.S.C.,** so we hear, has just returned from a tour of high confidential sea duty aboard his yacht, now a Coast Guard-Navy auxiliary.

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Clifford Stine, A.S.C., who recently joined the Photographic Section of the Army Air Forces, is now reported to be in charge of the Camera Department at Wright Field, the Air Forces' big experimental plant. Drop us a line, **Cliff**—and a picture of yourself in uniform to help dress up this page!

•

Speaking of pictures, **Len H. Roos, A.S.C., F.R.P.S.,** sends a cheery note from Honolulu, where he's one of the officially-accredited newsreel correspondents, and says he's sending a picture of himself in uniform. Hope the censors don't think that **Len** in a tin hat is a military secret—!

Prexy **Fred Jackman, Sr.,** beaming and passing out cigars, accounts of he's a grandpappy again—with the cooperation of younger son **Joe** and **Mrs. Joe.** It's a girl.

•

Highlights of the recent S.M.P.E. Convention in Hollywood were some very swell papers on the practical aspects of cinematography by **John W. Boyle, A.S.C,. Farciot Edouart, A.S.C., L. William O'Connell, A.S.C.,** and **Winton Hoch, A.S.C. Johnny Boyle** rates a special bouquet of orchids for the way he carried through on the difficult assignment of organizing a symposium of papers on cinematographic problems, in spite of the fact that production chores at Universal kept him busy until the last moment before S.M.P.E. Prexy **Emery Huse, A.S.C.,** dropped his gavel to open the convention.

•

Joe Walker, A.S.C., draws the assignment to photograph Columbia's biggie, "My Sister Eileen."

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We hear **Harry Stradling, A.S.C.,** is looking for a new Assistant Cameraman now that his regular Assistant, Bob Moreno, has joined the Navy's Photo Unit.

•

Byron Haskin, A.S.C., knocking off twenty pounds of avoirdupois to streamline himself for the physical exam that's slated to put a Major's insignia on his shoulders.

•

Archie Stout, A.S.C., spends a lot of his time lately at his tungsten mine in the Sierras. He's mighty relieved lately, thanks to a reassuring cable from son Junius, on duty with the same Navy Photo Unit **Lt. Harold "Winnie" Wenstrom, A.S.C.,** skippers, reported safely arrived at some unannounced destination "down under."

•

Glenn R. Kershner, A.S.C., pounds lighter after a siege of pneumonia, is Senior Air Raid Warden for his Culver City district. We hear he's taking bows for having the best-organized A.R.P. unit in Southern California.

•

Stanley Cortez, A.S.C., reports not even the glamor of a movie troupe under their noses can lure America's anti-aircraft gunners away from their posts. On location at an unnamed spot along Southern California's coastline, letting the landscape double for the White Cliffs of Dover for a scene from "Eagle Squadron," **Stan** found himself set up literally in the shadow of the Ack-Acks. But in spite of the alleged glamor of the movies, not a gunner took a step away from his post all day. Tokio papers please copy!

Family confidence, we'd call it—**"Woody" Bredell, A.S.C.,** spending two weeks making tests of sister-in-law Deanna Durbin for her new pic. We know of plenty of in-laws who'd make a session like that an excuse for a battle of the rushes . . . guess **"Woody"** is not only a darn good cameraman, but an equally expert diplomat!

•

Nice to see **Karl Struss, A.S.C.,** and **Will Cline, A.S.C.,** teamed up again at Paramount, a-Technicoloring "Happy Go Lucky." After the swell job they did on "Aloma of the South Seas"—an Academy Award contender—we're looking forward to seeing this one—if they can keep a certain art director from mishandling it!

•

Len Smith, A.S.C., fully recovered from his recent illness, and back to work again at MGM.

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Harry Perry, A.S.C., off to work, to film special scenes and backgrounds for RKO's "The Navy Comes Through." We bet **Harry'll** "come through," too!

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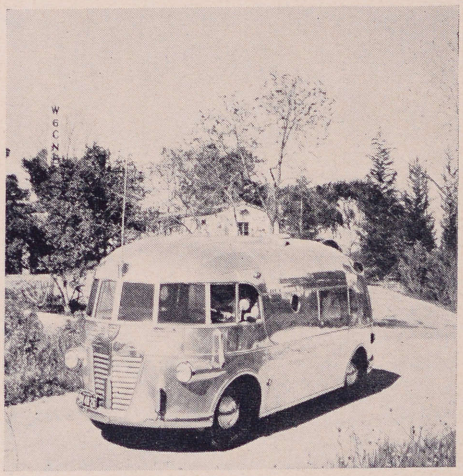
Joe McDonald, A.S.C., the recipient of a new contract at 20th-Fox.



Have you encountered this unusual car purring over Cahuenga pass morning and evening—? If you have, you were probably too surprised to recognize its driver as **Roy Hunt, A.S.C.,** who built this land-going crusier himself. It's powered alternatively with a Mercury motor and a steam engine **Roy** designed and built himself. Well, if the steamer will run on fuel oil, kerosene or even third-rate bourbon, the way some do, **Roy** may be the only one of us who can laugh if gasoline-rationing comes to California!

•

Speaking of cars, Honorary Member **E. O. Blackburn, A.S.C.,** seems to be leading some sort of an automotive double life. We hear he drives to work in his usual car, as the dignified Hollywood V.P. of J. E. Brulatour, Inc. Business attended to, he ducks quickly out a side door and drives away in another bus, specially blazoned with Red Cross insignia, as **Eddie Blackburn,** go-getter for the Red Cross!

PHOTOGRAPHY OF THE MONTH

MOONTIDE

Twentieth Century-Fox Production.

Director of Photography: **Charles G. Clarke, A.S.C.**

Put "Moontide" down on your list of "must see" productions. In addition to offering the American debut of a decidedly noteworthy new star—Jean Gabin—and a half-a-dozen intriguing acting performances, Charles G. Clarke, A.S.C., has made it one of the finest examples of mood photography to be released this season. Even if you like nothing else about the picture, you'll appreciate what he has done with his camera and lighting.

Laid as it is in the picturesque locale of a California town's waterfront, and depending entirely on character performances dramatically, "Moontide" is the sort of picture which leans heavily on the skill of its director of photography, and at the same time offers him endless, satisfying opportunities for creating pictorial moods. Charlie Clarke has risen magnificently to the occasion. His effect-lightings—both on sets and players—deserve careful study. To a very high degree they combine effectiveness—both pictorially and dramatically—with an impression of unstudied realism which is extremely hard to achieve. They seldom look like "effect-lightings" in the ordinary sense; instead, they're just what you'd expect in reality in such a place. They're so convincing you aren't conscious of what they do to build pictorial and dramatic effect.

His treatment of the players is excellent. Jean Gabin, of course, has a face which is a natural invitation to anyone with a penchant for strong portrait-lightings; and Clarke responds, without ever becoming obvious about it. His treatment of Ida Lupino, in her transition from a forlorn waif to a radiantly happy wife, is another model of cinematic good taste. Again, he avoids the obvious, but makes the most of every opportunity.

Technically, "Moontide" offered many problems. Photographed entirely on a stage, it yet manages to covey with rather remarkable success the impression of natural exterior photography. The night and fog effects are of course comparatively easy; but lighting up this huge area for day effects—and keeping them believable—is a real achievement. For dramatic effect, I'd have liked to have seen these day-shots slightly lower keyed; but for realistic effect, Clarke's treatment could hardly be improved.

Director Archie Mayo deserves an orchid for his deft use of pantomime, and he and Clarke should share honors for an unusually interesting montage used to portray Gabin's colossal spree at the start of the picture. It's worthy of careful study, and enthusiastic applause. The sound-recording could have been improved; but Gabin's style of delivery makes this difficult, as he has a tendency to "throw away" lines by reading them at an unusually low volume-level.

MY FAVORITE BLONDE

Paramount Production.

Director of Photography: **William Mellor, A.S.C.**

A few months ago I dropped in on Billy Mellor while he was photographing "My Favorite Blonde," and he told me how he was trying to treat it to maintain the low-key treatment necessary for a spy melodrama with the higher-keyed effects necessary to be sure none of Bob Hope's gags would be lost in the shadows. He was, he told me, keeping everything low-keyed except the particular spots where Hope was enacting his "business," and keeping the brilliance there from appearing obvious. That's a difficult thing to do, especially under modern production conditions, and I frankly wondered if he could do it.

It is a pleasure to report, therefore, that the evidence on the screen shows he can. He builds to excellent melodramatic effect, but never seems to let the audience miss one of Hope's gags. In addition, he does more than ordinarily well by Madeleine Carroll. The result is worth seeing—even if Hope's comedy hasn't already lured you past the ticket-office!

THE GREAT MAN'S LADY

Paramount Production.

Director of Photography: **William Mellor, A.S.C.**

Here's a picture that's well worth seeing from every angle, with particular praise for the job of camerawork Billy Mellor, A.S.C., has turned out. He has to cover an unusually wide range of moods and effects in this story which sprawls across the better part of a century, and he does it with a deft sureness that characterizes all of his recent work.

His treatment of the players is excellent, especially as regards Barbara Stanwyck who, in the younger ages of her role, makes the best photographic appearance she's made since "The Lady Eve." Makeup artist Wally Westmore, incidentally, deserves high praise for an unusually convincing job of makeup in which he takes her, in successive stages, from young girlhood to the age of 110. It is one of the few examples of old-age makeup which seemed at all convincing on a woman player.

We can't help wondering, however, why in the scene in which Joel McCrea drunkenly shoots out the candles in the niche—an effect-lighting anyway—Mellor didn't dim out the illumination of the niche as the candles were extinguished.

The uncredited miniatures and process-projection work, which we assume to be by Gordon Jennings, A.S.C., and Farciot Edouart, A.S.C., are excellent, especially the scenes of the flood.

MEET THE STEWARTS

Columbia Production.

Director of Photography: **Henry Freulich, A.S.C.**

Henry Freulich, A.S.C., turns in his customarily competent brand of camerawork in this routine little comedy of young married life. With the exception of the opening sequence—obviously shot under most unfavorable weather conditions—nothing in the picture is open to criticism, and both his effect-lightings and his treatment of the players deserve decidedly warm praise. We particularly liked his treatment of the two sequences in the darkened house, which had a naturalness that takes them well out of the conventional effect-lighting class.

MISS ANNIE ROONEY

Edward Small Production, United Artists' Release.

Director of Photography: **Lester White, A.S.C.**

Lester White, A.S.C., has handled this picture with one of those jobs of camerawork so well keyed to the requirements of the story that it's likely to be badly underrated. Beginning in the $35-a-month apartment of an ex-policeman, and running the gamut from that to a swank Sutton Place apartment, White keeps his treatment excellently keyed to the scenes he is photographing. You're not really conscious of what a genuinely good job he's doing until you imperceptibly notice that he is building to definite dramatic camera-treatment as the story reaches its dramatic climax. There, his lighting does a great deal to add force to the action.

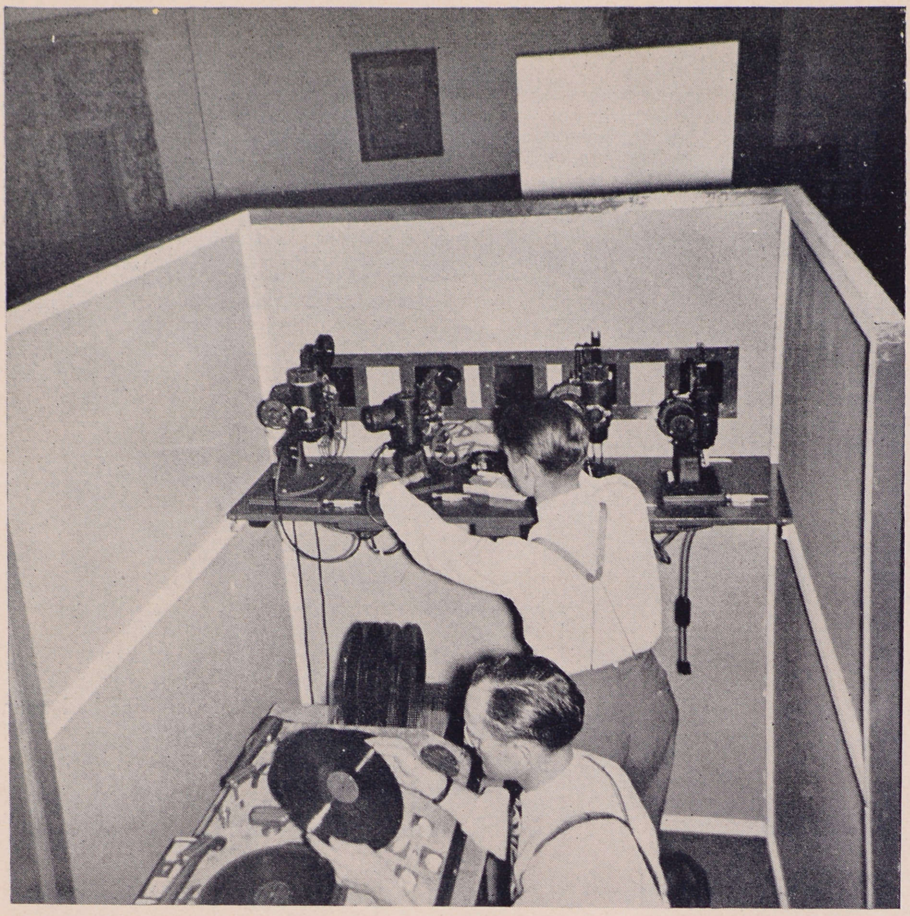
White's treatment of the players—especially Shirley Temple—is excellent, though now that she's growing up, it seems to us that a slightly more pronounced diffusion treatment would be desirable in the young lady's closer shots.

FLY BY NIGHT

Paramount Production.

Director of Photography: **John F. Seitz, A.S.C.**

John Seitz's camerawork does a lot to lift this unpretentious little cops-and-robbers spy melodrama out of the routine class. Even though it was obviously turned out in a hurry, it has the customary Seitz polish to its visual presentation, and his effect-lightings are exceptionally interesting. He does very well by his players, too; Nancy Kelly, for example, hasn't appeared to better advantage in quite a long time.



Projection — Unlimited!

By HAROLD O'NEAL

Associate Projectionist
Long Beach Cinema Club

SOMETHING was wrong! Although in a possibly misguided moment our amateur cine club had been called the "most progressive" in the United States, many of us saw that such an appellation was not a compliment as much as it was actually a challenge to continual improvement—and we had plenty of room for that!

In particular, we saw a need for better film presentations at club meetings; although we had read plenty of articles on the importance of showmanship in projection, yet in actual practice there appeared to be a bogging-down point far from the easy perfection all the articles stated could be readily obtained merely by following a few simple rules.

We wanted smoother showings, too, at our annual film extravaganza, when special invitations—and a few threats—were sent to all our friends to join us in viewing our club productions and the best work done by individual members during the year. Improvement was certainly desirable, we believed, in our projection technique at the week-long hobby-show given yearly in the municipal auditorium, when a continuous afternoon and evening show of amateur movies was given, on regular theatre-like schedule.

We had the best of projectors and screen with members alternating in bringing their double-turntable equipment to furnish background-music. We had a loyal projectionist who followed the standard accepted practices of presentation; yet in spite of following all the rules in the book, the results still did not satisfy us.

When our club visited other movie groups we found much the same situation and procedures, and also just about as much confusion attending their film showings. Of course the cineamateurs were very considerate and understanding, and probably didn't even notice the obvious discomfort of the casual guest. The enthusiasts are used to showing movies at home, and are hardened to the ordeal of getting the projector positioned correctly in relation to the screen, high enough, with the aid of the projector-case or Webster's Unabridged to clear the bobbing head of Aunt Sue with her fluffy hair, and of realigning it every time a reel is changed or one of the children "accidentally" jars the projector or one of its many supports—(why don't children settle down and look at the pretty scenery, anyway?)

The old-timers can manage a smile when the room-lights are snapped off, then on, then off, as the projectionist corrects a lost loop or makes an emergency splice. Their ears, used to the grind of a projector, are able to tune out much of its noise, along with the rattle of film cans, the click of records, and the stage whispers between the projectionist and sound-man as to the proper music for background with the next "epic." The hardened amateur does not allow the escape of stray light from the projector and the turntables to bother him, and can maintain an amazing degree of concentration on the screen as the operator stumbles around in the dark lining up the next picture or putting away the last one.

All this we, too, took for granted—for quite a while—accepting it as part of the privilege of being one of the friendly fraternity of filmers. We did our bit to help—by taking a turn with the other members at standing in back of the projectors or turntables offering advise: "Couldn't the focus be sharpened?" and "Better clean the aperture," or "That music seems pretty slow for a comedy, doesn't it?"

Our discontent began to jell after we had spent several evenings viewing movies at the home of our fellow club-member, Ray Fosholdt. The pictures we had tolerated at the club took on new beauty, and we even felt a little pride in an old film of our own! Now, Ray has a den built with a projection-both eyeing into one end, both den and booth being soundproofed, and as we saw our celluloid strip making a much better attempt to put across its story than it had been able to do previously, with the background music accepting its responsibility without competition from projection noises, without the confusion of lights and bustle between reel changes, we realized that our club, at least, needed better projection facilities.

In considering the problem of movie projection for the amateur club in general it seems that the ideal arrangement can be summarized as follows: Have an enclosure or booth in which the projectors and turntable equipment can be operated with adequate lighting so that films and records can be located and easily readied for use, and so that projectionist and sound-man can confer conveniently for proper music and cues, yet sufficiently sound and light proof to prevent distracting noise and light from reaching the audience. A method of controlling room lights from the booth, also, will be almost essential to smooth performance and lessened confusion. In addition, this enclosure should lessen the possibility of friendly but sometime disconcerting advice and assistance, such as happened recently at a club meeting when a member tried to find a record which might fit his particular film—

and in using the unfamiliar rack, broke a disc somebody else had just bought for a special film!

A built-in booth was out of the question for our club, as we occupied a room used constantly by other groups—a situation probably duplicated by most other clubs. In any case there was no room (much less money in the club treasury!) for a permanent installation. The answer to our problem appeared to be a portable booth, one that would be inexpensive, quickly and easily set up, small enough when disassembled and not in use so that it could be stored easily, and one which could be readily transported to other locations for special occasions.

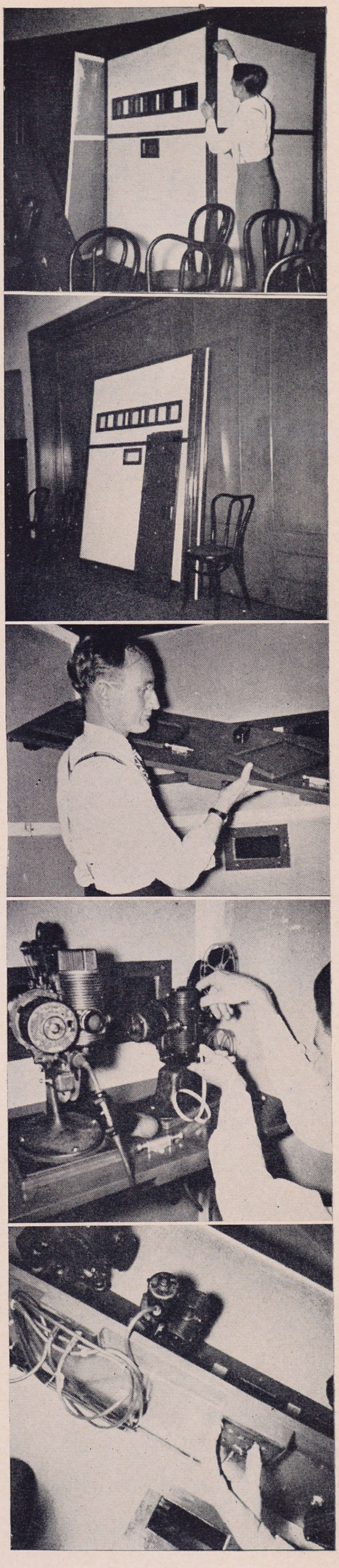
When, following the club elections, I found myself on the Sound Committee, and assistant to the club projectionist, Val Pope, it seemed a good time to put ideas into action. Bob Hadley, our new president, and the directors, "Midge" Caldwell and Ray Fosholdt, easily saw the need for improvement, and agreed that the club should defray the cost of materials. Projectionist Pope offered his assistance, and we began construction on what we hoped would become a valuable piece of club equipment.

A few general statements and suggestions can be made, even though construction details may be apparent from the illustrations. Provide a booth large enough to house at least four projectors—two eights and two sixteens. This will permit an uninterrupted show, and on multi-reel subjects an instantaneous changeover may be made, as in professional practice, by a simple switching arrangement.

We made the walls of the booth each approximately five feet wide and seven feet high. These three wall panels are jointed by butt hinges, with easily removable pins, and make an enclosure five feet square. Weight and sound-transmission were reduced by the use of a sound-absorbent wallboard, one-half inch Cleotex having been used in our construction, and we have found that the separate sides are light enough and small enough to be handled by one person if necessary.

A word of warning before having the millman groove the 2x2's used as a frame for the Cleotex: be sure that the groove is in the exact center; otherwise you may have trouble in matching sides and fitting the board. Incidentally, we believed it wiser not to paint the Celotex due to possible lessening of the sound-absorbent qualities, but we did apply two coats of a sizing preparation to increase surface toughness somewhat.

Our booth is a three-sided affair, as it is used against the back-wall of the clubroom; when it is used in large halls provision is made to hang a curtain over the fourth side. For ventilation, and to prevent tripping against the sides of the booth, the bottom of the panel was raised a few inches off the floor. No provision was made for a roof, and none has been found necessary so far. All three sides were constructed alike, with a keyhole saw then having been used to cut the ports into the front side. We placed a fifth port in the center and in line with the projection-ports to serve for observation, and directly below it and below the projector-shelf another observation-port so that the sound-man, when seated, could see the screen. Although the arrangements shown here is satisfactory with Filmo projectors, the exact size and location of the ports will vary according to equipment used and individual preference. Another construction note: In setting the glass ports in place, cutting them from good quality plate-glass, or old glass negatives if available, there will be room in the one-half inch thickness of Celotex to tilt them downward, minimizing reflection. Use putty to hold the glass in place, smoothing it even with the edges of the wooden framing.



Reading from top; assembling the projection-booth; the booth knocked down; putting the projector-shelf in place; detail of projector mounting, showing how projector can be swiveled for easy threading; bottom, detail of wiring beneath shelf.

The shelf on which the projectors sit is the heart of the entire construction and should include all of the operating features to refine and speed your movie presentations. It might be that your club would prefer to construct this part first, with the idea of later building the complete booth, or that an amateur would want such a board for use in his own home, where a booth might not be feasible. Also, there is no reason, even with the complete booth available, why there may not be occasions when the board, with a proper substitute support, cannot function alone to help present your program much better than would otherwise be possible. Various other changes and adaptations will undoubtedly suggest themselves for special uses.

This shelf, being a separate unit which will merely be supported in proper position by the walls of the booth—and high enough so that the projectors will overshoot by a safe margin the head of your tallest spectator when seated—should carry all of the electric wiring and controls for the projectors. So that even a distant outlet may be reached, provide a long, heavy-duty lead-in wire, attached permanently to the under side of the board—it will be one essential item which you will no longer need worry about forgetting or misplacing. Provide at least three double outlets on the board to allow for snap-it pilot lights and extra installations. One of the outlets should be run through to the top of the board to provide lighting for the projection shelf.

Two double outlets are provided for the four projectors, the current being fed to either one or the other outlet from a double-throw, double-pole switch; two of these switches used together are found in homes where the same light is turned on or off by two different

(Continued on Page 276)

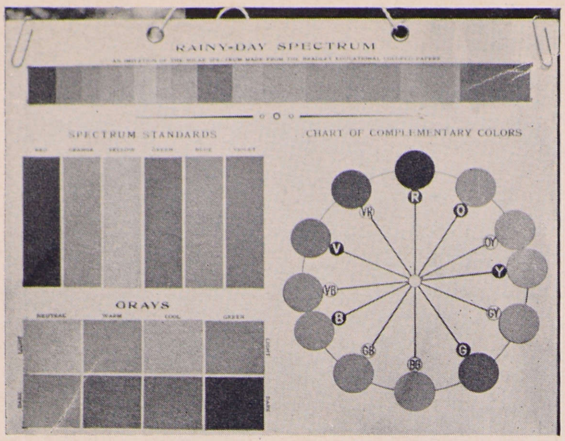


Fig. 1

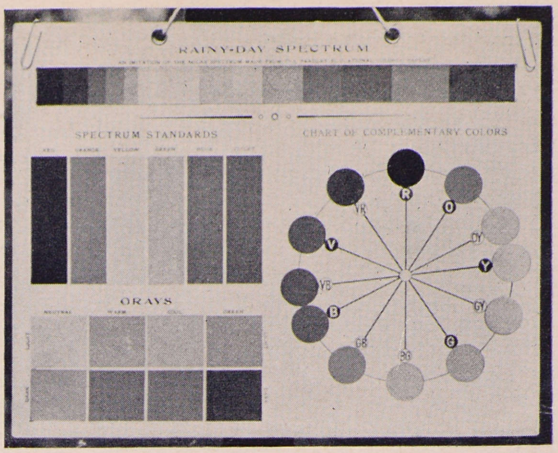


Fig. 2

DEBUNKING FILTERING

By ARCHIE J. STOUT, A.S.C.

MORE misleading things have been said and written about filtering than about almost any other part of photography. Every expert and near-expert seems to have his own pet theories on the subject, while every manufacturer has his own names (and claims) for the particular types of filters he manufactures. And if that wasn't confusing enough, most of us who have had professional experience base all our discussions on the designations of the various Wratten filters—which, as a rule, are obtainable for 16mm. and 8mm. use only on special order!

If you strip the subject down to its prime essentials, though, it's really surprisingly simple. Once you know *how* a filter (any filter) works, and *what* the basic types of filters do in general, you can throw away 99% of the experts' verbiage, and get results on the basis of your own understanding.

Regardless of the type of film or the color of the filter, the essential action of all filters is based on the same underlying principle. The results differ, naturally, but the principle remains unchanged.

While all films are sensitive to light, none of them are *uniformly* sensitive to *all* colors of the spectrum. This is fortunate, for if a film reacted uniformly to all colors, it would render all colors identically. As it is, since the film is more sensitive to some colors than to others, it renders these as lighter, and the colors to which it is less sensitive as darker shades of gray. In other words, for a given exposure, the light of colors to which the film is more strongly sensitive will produce a greater exposure, while light of colors to which the film is not so sensitive will produce less exposure. If the film is absolutely insensitive to any given color, light of that color simply won't produce any exposure at all, and that part of the picture will be rendered as black.

The earliest films were "color-blind"; they were sensitive largely to blue, but were not affected at all by red light, and very little, if at all, by light of any other colors. So they rendered blue as white, red as black, and most of the other colors as a pretty dark range of grays.

The next step was Orthochromatic film, which was still partial to blue, but could "see" yellow rather better, though it was still pretty blind to the rest of the spectrum.

Finally came panchromatic film—the type most of us use today. Theoretically, this film is sensitive to all colors; in practice, it is still rather partial to blue and yellow. Some types are rather strongly sensitive to greens (like some of the DuPont emulsions) and render greens comparatively light. Others (like some of the Agfa emulsions) are more sensitive to red than most emulsions, and so render red in a lighter gray than the average panchromatic rendition.

But with any type of panchromatic film, we still get a color-rendition which is basically like Figure 1, in which you'll notice red is rendered darkest, orange considerably lighter, yellow quite light, green distinctly dark, blue an intermediate gray, and violet just a shade darker.

Now, suppose we put on a yellow filter. This will stop all the ultra-violet light, and hold back some of the violet and blue (exactly how much depending on how deep a yellow the filter is), and it will pass the yellow and red unhindered, also letting the yellow component of anything green go by unhindered, but holding up the blue component. So you can expect something like Figure 2, which was made with a medium-yellow filter (a Wratten K-2). You'll see that the red and orange aren't changed

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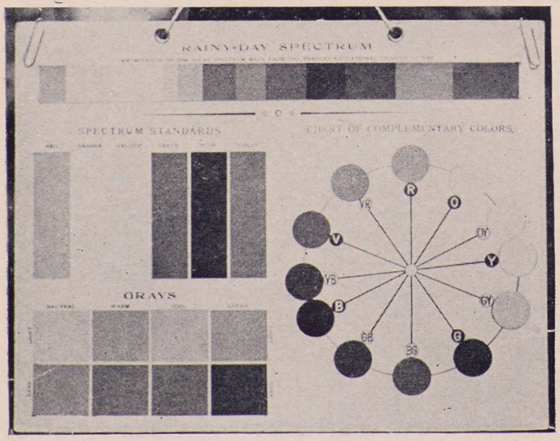


Fig. 3

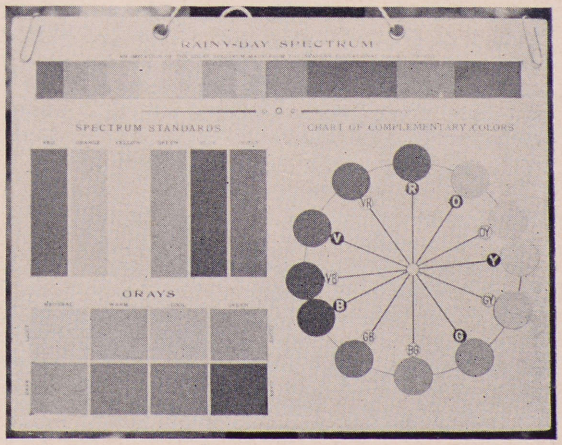
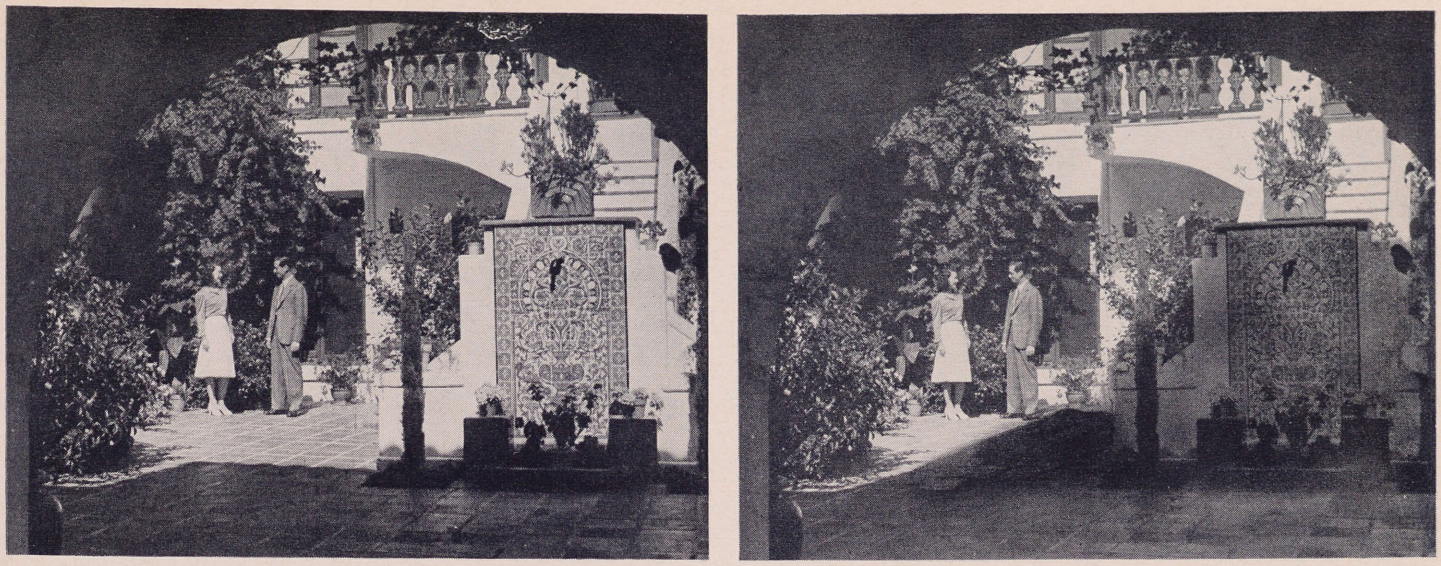


Fig. 4



Making Composition Work For You

By PHIL TANNURA, A.S.C.

TO MANY people, composition seems to be something "arty" and abstract—a matter of making your pictures decorative to look at, but otherwise very far removed from the daily problems of the practical picture-maker.

Nothing could be more mistaken! There are about two hundred of us here in Hollywood, members of the A.S.C., who make a very large part of our daily bread and cheese by putting composition to the very practical use of making movie audiences see what we want them to see, the way we want them to see it. And the same principles that we use in our 35mm. compositions will work just as well when applied to composing scenes for 16mm. and 8mm. film.

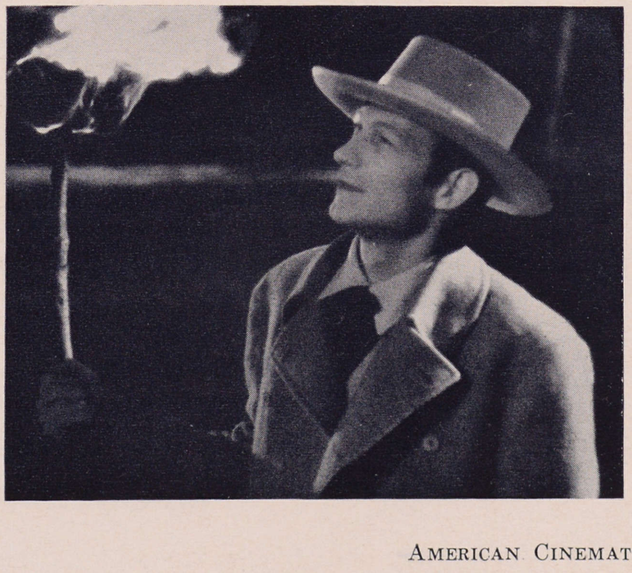
Leaving the decorative factor completely out of it, composition is a very practical means of guiding the audience's eye to whatever is most important in our scene—emphasizing what should be emphasized, and subordinating what is of lesser importance.

There are three chief means of emphasis in a motion picture composition: *position, tone* or (in Kodachrome) color, and *motion.* Usually, in a single composition we may be likely to put all three to work in various combinations. If we make them work *for* us, the result is not only a "good" composition, but a scene that tells its story the best and most efficient way. If we let them work *against* us, the scene is likely to be not only a poor composition, but confusing—hard-to-follow—dramatically and visually.

The first thing to remember about using position for compositional emphasis is the fact that when we look at any picture (whether painting, photograph or movie), the eye subconsciously starts in at the lower left-hand corner, and moves diagonally upward toward the upper right-hand corner, unless something intervenes along the way and diverts it along some other course.

Therefore it's best, if you can, to try to place whatever in your scene is most important somewhere along this upward left-to-right diagonal. If you can't do this, have something—it needn't be very big; it can even be a twig or a splotch of shadow if it's in the right place—athwart this line to divert and redirect attention toward your principal object of interest.

Above, note how shadow in foreground changes emphasis in this picture, and also guides attention to people. Below, the constant movement of the torch's flame is almost certain to distract attenion from the actor's face.



But there's another factor in positional emphasis that's important. With of course the exception of objects in the immediate foreground of a long-shot which serve to "frame" your scene, *whatever is nearest the camera is likely to be the dominant factor in a composition.* It's bigger on the screen and (unless you deliberately throw it out of focus to "de-emphasize" it), it's likely to at least *seem* better defined, especially with the immense depth of focus in substandard camera-lenses.

Tone and color values can make or mar a compositional emphasis, perhaps more strongly than anything else. A small object in your scene which is lighter in tone than the real object of chief interest is always likely to "steal" the scene, or at least prove a distracting note. An object which is both lighter in tone and large in area will almost invariably subordinate your object of chief interest, no matter how the two may be placed within the frame.

This tonal domination, remember, may come not only because the object in question is actually lighter in visual tone or color, but because it is in a shade which photographs more strongly, or because it is made lighter by being more strongly illuminated, so that it is rendered lighter photographically. For example, suppose you have a girl in a red dress, in the shade, and a yellow canvas lawn-chair, in the sun. To the eye, that red dress will dominate what you see through the finder, because red is visually the brightest color. But photographing that scene with average black-and-white panchro-

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A Picnic Scenario That Won't Waste Your Tires

By H. WILLIAM MOORE

RUBBER and gasoline shortages will probably put a crimp in many a family picnic this summer—but here's a picnic comedy you can film without wasting either tires or fuel. It has been slanted to cover two special points. First, to be filmed in the open so you can capture the picnic atmosphere, yet without having to wheel the family bus out of the drive. Most of the scenes can be shot, if necessary, in your own back-yard (or your neighbor's), in the local park, or almost anywhere.

Secondly, most people who shoot 16mm. or 8mm. home movies want their offspring to star. All right—this script is built around the sort of youngster to be found in most American homes. Of course, like any star, "Cuddles" has a lot to do in this homespun comedy; but if he (or she) is half as wonderful as you think he is, these scenes will give you a much better showcase for your young pride and joy than the ordinary home movie does.

"PICNIC JAM"

Main Title: "Picnic Jam"
Credit Ttitle: The Cast—
Joe (The husband)
Nancy (The wife)
Cuddles (The baby)

SLOW FADE:

Scene 1: (Slow fade in) Full long shot of home—Joe, Nancy, Cuddles.

Open cold on pictorial shot showing "home place" to best advantage. Frame the house in trees if feasible. The family car should be parked in the drive or at the curb and included in the scene.

DISSOLVE TO:

Scene 2: Close shot—Front door—Cuddles (Low camera angle) Door opens and Cuddles comes through opening. He has jar of jam in hands and is wrapped up (mentally) in the jam. Cuddles looks back in house as he hears his parents coming.

CUT TO:

Scene 3: Full shot—Cuddles—Nancy—Joe. Joe and Nancy come into the scene. Joe is loaded to the neck with blankets, baskets, boxes, and all the usual hodge-podge that makes up a "picnic in the woods." Nancy is mentally checking to see if anything has been forgotten. Cuddles busy with jam.

CUT TO:

Scene 4: Close-up—Nancy. Nancy has finger at side of mouth, eyes rolling to the ozone, repeating the items needed for the excursion. A sudden expression of "Oh, I forgot something!" floods her face. She turns to Joe.

CUT TO:

Scene 5: Two shot—Joe and Nancy. Nancy gesticulates wildly that she has forgotten something and will be gone only a minute. She re-enters house. Joe's head turns after her.

CUT TO:

Scene 6: Close up—Joe. Joe turns back to camera. Shrugs. Registers expression: "Oh, well . . . you know women . . ." He looks down over his armload for Cuddles. His expression shows that Cuddles isn't there. He lifts his eyes to front lawn. Registers that he sees Cuddles, then breaks into broad smile.

CUT TO:

Scene 7: Medium shot—Front lawn—Cuddles. Cuddles walks into scene, still lugging jar of jam. He puts jam down on grass, then sprawls out on his stomach with jam in front of him, cups chin in hands and looks fondly at the tasty spread.

CUT TO:

Scene 8: Close-up—Cuddles. (Camera at low angle, jar of jam next to lens and right of frame.) Cuddles shakes head in perplexity as if thinking: "How'm I going to get into that jam . . .?" Then he looks back over shoulder to where his father is standing.

CUT TO:

Scene 9: (Same as 5.) Joe and Nancy. Joe is looking at door as Nancy flutters through and holds up an item for his inspection.

CUT TO:

Scene 10: Extreme close-up — Can-opener. Nancy is holding a can-opener between thumb and forefinger.

CUT TO:

Scene 11: (Same as 9.) Joe wags head in resignation: "I might o' known it!" Then, he flips head: "Come on . . .!" Nancy looks meek and says: "Yes, Joey. . ." They walk into camera.

CUT TO:

Scene 12: Medium-shot — Joe and Nancy. (Shoot over hood of car, or through rolled down window for special effect.) Joe and Nancy are walking toward car. Joe loaded to the masthead; Nancy tripping gayly with—the can-opener. (Build this for comedy.)

CUT TO:

Scene 13: Reverse angle of Scene 12. Joe and Nancy reach the car. Nancy turns towards camera.

CUT TO:

Scene 14: Close shot—Nancy. Nancy looks to right of camera lens, she spots Cuddles. She places hands on hips, saying: "Cuddles, come here. . .!" She starts walking into camera and to the right.

CUT TO:

Scene 15: Medium-shot — Cuddles — Nancy. The jar of jam is on the grass and Cuddles is walking around the jar in a small circle. His hands are behind his back. He's still pondering the problem: "How do I get into the jam?" (Nancy enters scene from camera and left of frame.) Nancy goes to Cuddles, picks up jam and Cuddles (or kneels if he is too large to hold).

CUT TO:

Scene 16: Close shot—Cuddles and Nancy. Nancy brushes his hair with one hand and starts to speak:

Title: "This is one day you're not getting into any jam!"

Scene 16-A: Finish of Scene 16. Finishing the speech, they move into camera and right.

CUT TO:

Scene 17: Medium-shot—Joe—Car—Nancy and Cuddles. Joe is in the act of throwing the last piece of paraphernalia in the car. It tumbles out on the ground. He picks it up and throws it in again, this time closing the door hastily, and and then turns toward camera, leaning his back up against the door, and mops his perspiring brow with a handkerchief. (Nancy and Cuddles enter from camera left.) Joe waits till they get up to door, then opens the car door for them. The package falls out again on the ground.

CUT TO:

Scene 18: Close shot—Joe. Joe rolls his eyes so that the white of the ball is seen. He starts to retrieve the package.

CUT TO:

Scene 19: Full shot—Joe—Nancy—Cuddles. Nancy and Cuddles get in the car. Joe has stooped down to get the package, starts to raise up and hits his head on handle of car door. He freezes on the spot, reaching for his damaged dome at the same moment.

CUT TO:

Scene 20: Close shot—Joe. Joe is gritting his teeth, eyes blink slowly and in rhythmic cadence. No words are needed to let the audience know what he is thinking. . . .!

SLOW FADE TO:

Title: "In the Calm of the Forest . . ."

Scene 21: Full-shot — Picnic set — Nancy, Joe, Cuddles. Tablecloth is spread on grass in open glen. Trees and shrubs surround the spot. (Any typical picnic locale.) On the tablecloth we find plates, food, etcetera, being placed by Nancy. Joe is away from camera and stretched out on the grass, head propped against the base of a tree or in some other state of repose. Cuddles is nearest the camera. He is speculating on the progress his mother is making toward the food preparations. He has the can-opener in his hand. In the center of the tablecloth . . . is the jar of jam.

CUT TO:

Scene 22: Close shot—Joe. Joe registers an expression of keen satisfaction, saying to himself: "Ah . . . peace . . . at last. . . .!"

CUT TO:

Scene 23: Medium-shot—Nancy. (Cuddles does not show in this.) Nancy is studying the tablecloth to see that everything is ready before she disturbs Joe. She notes lid has not been removed from jar of jam. She reaches for jam and heads for poor Joe.

CUT TO:

Scene 24: Medium close shot—Joe and Nancy. Joe is almost asleep. Nancy comes into scene. She shakes Joe. Joe awakens with start. Nancy tells him to open jam. Joe takes jar and starts to twist and pull on lid.

CUT TO:

Scene 25: Close shot—Joe. (Angle over Nancy's shoulder) Joe pulls and tugs on lid. He can't get it off. He asks: "Where's the can-opener?"

CUT TO:

Title: "Where's the Can-opener?"

Scene 25-A: Same as end Scene 25. Joe finishes speaking.

Scene 26: Close shot—Nancy (Angle over Joe's shoulder). Nancy repeats: "Can-opener . . .?" Thinks for a few seconds, turns away from camera, spots Cuddles with the opener, and registers: "Oh, . . . Cuddles!" Starts to rise.

CUT TO:

Scene 27: Medium-shot — Cuddles — Nancy. Cuddles, with background of shrubbery or other pictorial setting, is industriously digging the earth with the illusive can-opener. Dirt is flying and he is having a wonderful time. (Nancy enters) Nancy reaches down, takes can-opener, and heads back for Joe.

CUT TO:

Scene 28: Close-up — Cuddles. This should be a natural expression of: "What'ya do that for, moms . . .?" Cuddles gets up.

CUT TO:

Scene 29: Medium-shot — Tablecloth and Food—Cuddles—Nancy (Angle is such that Nancy and Joe are not seen). Food fills left of frame; Cuddles is to right of set. Cuddles is looking the table over with a "hungry" eye. (Nancy enters with opened jar of jam.) Nancy comes into set from left. Places jam on tablecloth, then exits the way she entered.

CUT TO:

Scene 30: Close-up—Cuddles. Cuddles fixes a stare on jam. He can't believe his eyes!

CUT TO:

Scene 31: Flash close-up—Jam. The jam—waiting . . . !

CUT TO:

Scene 32: Same as Scene 30. Cuddles smacks lips in anticipation. Boy, if he could only get a finger into the amber spreading before mom spots him. He looks from spread to direction his mother disappeared.

CUT TO:

Scene 33: Medium-shot—Nancy (Low angle). A pictorial shot with Nancy relaxing. She is paying no attention to Cuddles. This should be well composed and definitely an angle to show Nancy off at her best. (A quick shot.)

CUT TO:

Scene 34: Close-up—Cuddles. Shifts sly look a bit to take in father.

CUT TO:

Scene 35: Close-up—Joe. Joe is sleeping. He has handkerchief spread over face and exhales as shot begins. Handkerchief billows out.

CUT TO:

Scene 36: Medium-shot—Tablecloth—Cuddles (Shoot across tablecloth and food). Cuddles knuckles down to all "four feet" and starts advancing toward jam.

CUT TO:

Scene 37: Reverse angle of Scene 36. Shoot over back of Cuddles and focus to cover jar of jam.

CUT TO:

Scene 38: Medium close shot—Nancy. Nancy stretches gracefully, breathes deeply of the forest air, and turns back toward tablecloth. She gasps an "Oh . . . !" as she spots the despoiler of the jam. She starts for tablecloth on the double.

CUT TO:

Scene 39: Medium-shot—Tablecloth—Cuddles—Nancy. Cuddles has about "two more crawls" between him and jam. (Nancy enters) Nancy comes in from left and catches Cuddles just as he reaches out paw for the tasty jam.

CUT TO:

Scene 40: Close shot—Nancy and Cuddles. Nancy, not too seriously, tells her offspring that he is a naughty boy. She taps him lightly on the rear, and says: "Now, run along and play." Nancy, who has been kneeling down to son, rises.

CUT TO:

Scene 41: (Same angle as Scene 21.) Full-shot—Picnic spread—Joe—Nancy—Cuddles. Cuddles scampers around, not knowing exactly what to do. Nancy, seeing that her chores are done, decides to rest a bit since Joe is still sleeping. She walks over to spot where Joe is. (Camera follows Nancy.)

CUT TO:

Scene 42: Close shot—Joe and Nancy. Joe is still "sawing wood" in comical fashion. Nancy joins him. Settles at his side and snuggles head against his shoulder. Joe automatically places an arm about her. Nancy shows that she, too, is due for a nap.

SLOW FADE TO:

Title: "One Hour Later . . ."

Scene 43: (Angle same as Scene 21.) Full shot—Nancy and Joe—Slow fare-in. (Cuddles is not on set.) Nancy and Joe are still sleeping. (Their positions should be altered slightly.)

CUT TO:

Scene 44: (Same as Scene 42.) A small cluster of leaves that are attached by stems flutters on Nancy's face. She awakens, sits up, looks up to tree, sees that the breeze (or tree) is responsible for her awakening, smiles, and looks for Cuddles.

CUT TO:

Scene 45: Close-up—Nancy. Nancy calls: "Cuddles . . .!" By expression indicates there is no response. Turns to Joe.

CUT TO:

Scene 46: (Same angle as Scene 44.) Joe is still sprawled in sleep. Nancy

(Continued on Page 270)

"SOUNDING" A 16mm CIVIL DEFENSE FILM

By WILLIAM STULL, A.S.C.

CIVIL Defense pictures, regardless of whether amateurs or professionals make them, are most effective if there's a good sound-track to help the pictured action tell its message of preparedness. And while there are plenty of amateur groups in this country filming or preparing to film pictures of this nature for their Defense Councils, not very many of them are lucky enough to own 16mm. sound-recording equipment with which to record their own sound. But that doesn't mean that their films have to go out silent!

Take the Long Beach (California) Cinema Club for example. They've just completed what is probably the first amateur-made Defense Film—an excellent one-reel Kodachrome picture on incendiary bombs. From the start, their script called for sound, in the form of narration, sound-effects and at least one sequence of synchronized dialog. But their available equipment didn't include any sound-on-film recorders, and their budget wouldn't permit engaging a professional 16mm. film recordist to come down to record their single dialog sequence.

Yet their picture, "Fire From the Skies," is being released in sound!

How was this done?

It's simple enough, and, in the most part, something that amateur groups in any part of the country can do, too. They shot their picture first, got it completely edited, and put the sound in afterward—which is precisely what many a professional producer in the short-subjects field also does. Pete Smith, for instance, "The March of Time," and most of the newsreels.

The first step was to draft their first script with sound in mind from the beginning. Scenes such as those showing the approved methods and equipment for home fire-bomb fighting were planned, both in subject-matter, angles and footage, so that they'd be well suited for use with whatever explanatory narration was needed. The dialog sequence was planned and written as a "talkie" sequence from the start.

When actual shooting commenced, everything was shot at the standard sound speed of 24 frames per second.

The dialog sequence was directed and filmed with special attention paid to the fact that the words would be post-synchronized to the picture. Even though it was shot silent, the actors spoke their actual lines, as given in the script, and paid particular attention to clear lip-movement.

When the film was sent in for processing, the laboratory was requested not to project the film for inspection, instead of following their usual routine. The reason: the Kodachrome original has to serve the same purpose as a negative; the release-prints are made from it, and that original must therefore be treated with all the respect a user of negative-positive would accord his original negative. And projection—even in the best-maintained inspection machines of a major 16mm. laboratory—is likely to leave scratches and other abrasions on the film which can never be eradicated, and which will show up on every print made from that original.

As soon as the film came back from the processing, a black-and-white reversal dupe was made from it. This served as a "work print," for viewing and cutting purposes. Without touching the priceless original, the picture was edited in this work print—not only "rough cut," but completely edited and titled, right down to the last frame of trimming.

Then, the tentative narration which had been outlined in the shooting script was polished and timed to match the footage of the film itself. In doing this, not only the picture as a whole, but each scene and sequence was carefully measured for footage on a film-measuring synchronizer. For each foot of 16mm. film, an average of three words of narrative may be used.

At this point, careful rehearsals were begun, projecting the work print in a sound projector (always at sound speed), with narrators Ray Fosholdt and Hazen White carefully practicing their lines and timing, and with the four women who, with Fosholdt, figured as "ghost voices" in the dialog sequence, rehearsing their lines until they could synchronize their words perfectly with the pictured lip-movements on the screen.

All of this was done in the homes of the club-members, so that they could have things as nearly as possible perfectly coordinated before going to the recording studio, for professional recording charges are based on the time spent —rehearsals as well as actual recording time included.

At this point, too, they selected the music they wanted to accompany their picture. This came from carefully chosen phonograph records. In some films of this nature, music is only necessary as an accompaniment for the opening and end titles; but in this film, it was decided that a musical background should run throughout the film, subordinated, of course, to the voices, but always setting a musical tempo keyed to the action. This, too, was carefully rehearsed.

While this was being done, Director Fosholdt edited the original to match the work-print. This job of master-editing had to be precise, for if any scene was only a few frames longer than its footage in the work-print, the final sound print would be thrown "out of sync."

When the original had been matched with the work-print down to the ultimate frame, the group was ready to go to the recording studio. Here, the back-and-white work-print was placed in a projector operated at an absolutely exact 24 frames per second speed. The narrator sat more or less comfortably at a desk in the projection-room, facing the

(Continued on Page 270)

"ACTION! . . .
CAMERA . . .

"ROLL 'EM" . . . Under the direction of the United States Army . . . Signal Corps . . .

Enrollments are now being accepted for intensive training and instruction course in Professional 35mm. cinematography for men who are American citizens—20 to 45 years of age—preferably with some basic knowledge of photography—*particularly* with a *sincere* interest in cameracraft . . .

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ASSIGNMENTS to active duty as Cameramen for Field Service in the Signal Corps, United States Army to those who qualify.

STILL PHOTOGRAPHERS are also required for the same type of training and service.

Make application to your studio representative listed below . . .

Columbia Studio	*Major S. J. Briskin* *John Livadary*
Samuel Goldwyn Studio	*T. T. Moulton*
Metro-Goldwyn-Mayer Studio . .	*Lt. Col. Wesley C. Miller* *J. M. Nickolaus* *Douglas Shearer*
Paramount Studio	*Farciot Edouart*
Republic Studio	*C. L. Lootens*
RKO Radio Studio	*Major John Aalberg*
Hal Roach Studio	*Elmer Raguse* *Roy Seawright*
20th Century-Fox Studio	*Hector Dods* *E. H. Hansen*
Universal Studio	*Bernard Brown*
Warner Brothers Studio	*Colonel Nathan Levinson*

If not employed at one of the above studios make application to the

RESEARCH COUNCIL
ACADEMY OF MOTION PICTURE ARTS AND SCIENCES
1217 TAFT BUILDING
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HE-3201

AMONG THE MOVIE CLUBS

Films for Exchange

Previewed this month are:

"HENRY'S HOBBY," 400-ft. 16mm. b&w scenario about a henpecked movie-maker. An excellent scenario-film which should prove amusing to any club. Technicalities well handled, including first-class negative-position home processing. Available through **Syracuse Movie Makers Association,** D. Lisle Conway, President, 100 Trinity Place, Syracuse, New York.

"THE HAUNTED SCHOOL," 400-ft. 16mm. b&w scenario mystery-comedy. An unusually good job, notable for very good timing, direction, and effect-lightings. Available with post-recorded sound-on-disc, stroboscopically synchronized, if borrowing club will be responsible for replacement of disc if damaged. Also available from **Syracuse Movie Makers Association.** 8 mm. silent version also available.

Listed, but not previewed, are:

"CRADLE OF LIBERTY," (16mm.) Historical points of interest around Philadelphia.

"PHILADELPHIA MUMMERS PARADE," 8mm. Color newsreel of Philadelphia's annual New Year's fiesta.

"PICNIC DAZE," 8mm. and 16mm. versions available. Club-produced comedy of the difficulties of an artist trying to mix business and pleasure.

"REVERSAL PROCESS," 16mm. Documentary showing process of reversal-processing substandard film.

"RETRIBUTION," 8mm. "Crime Does Not Pay" scenario.

"GOLD IS WHERE YOU FIND IT, 8mm. scenario. Two prospectors strike gold—almost.

"IN OLD VIRGINIA," 8mm. Kodachrome. Historical scenes around Williamstown, Va.

"EVOLUTION OF THE MARWOOD CINEMA," 8mm. documentary showing the building of a basement theatre, from start to premiere opening.

"CLOSE-UPS," 8mm. documentary of production of a movie club's magazine.

"BOTTLENECK," 16mm. What happens to every amateur when he gets his first camera.

"VISITOR IN CAMP," 16mm. Kodachrome. A day's activity in a summer camp for boys.

The pictures listed above are all available from the **8-16 Movie Club of Philadelphia,** Exchange Officer, George Burnwood, 3035 Disston St., Philadelphia.

Part of the capacity audience at the Annual Open House held by the Indianapolis Amateur Movie Club.

Going to Australia?

American cineamateurs who, as members of the American Armed Forces, find themselves on duty in Australia are urged to make themselves known to the Australian Amateur Cine Society (Albert G. Kench, President; Hon. Secretary, Mr. L. Peek), Box 1463 JJ, GPO, Sydney. The A.A.C.S. has voted to make American cineamateurs on duty "down under" Honorary Members of the Society for the duration of their Australian stay, and is eager to extend them the welcome and hospitality befitting the occasion. The Society meets the first and third Monday in each month in the Science House Lecture Hall, Gloucester St., Sydney. Telephone contacts can be made through Publicity Officer J. A. Sherlock, Phone FW 1168.

We sincerely hope that all American amateur movie clubs will extend the same privileges and hospitality to cineamateurs in this country as members of the armed forces of Australia and the other members of the United Nations. We will gladly publish such information if it is made available to us.

Inter-Club Program in Indianapolis

The May meeting of the Indianapolis Amateur Movie Club, under the chairmanship of Past-President Elmer Culbertson, was highlighted by an unusually interesting inter-club exchange program, secured through the courtesy of THE AMERICAN CINEMATOGRAPHER. Loaned by the Los Angeles 8mm. Club was "Home Movies," an 8mm. comedy by Fred Evans, acclaimed as a super-clever scenario, and screened again by popular demand. Loaned by the Long Beach Cinema Club was "Happy Landing," a 2-reel 8mm. Kodachrome scenario film by Mrs. Mildred J. Caldwell, also pronounced outstanding. From the Los Angeles Cinema Club came "New Hampshire on Parade," International prize-winning Kodachrome scenic (16mm.) by Fred C. Ells, enthusiastically received as one of the finest Kodachromes the Club has ever seen, with perfect composition, exposure and construction. Last, but far from least, was "Doomsday," by Ruth Stuart of England's Institute of Amateur Cinematographers, a grand-prize winner in the AMERICAN CINEMATOGRAPHER'S International Contest, and one of the most unusual amateur movies ever made.

The success of this program is certainly a powerful argument in favor of the proposed Association of Amateur Movie Clubs. The idea has been most enthusiastically received by Indianapolis' amateurs, who look forward eventually to the possibility of a National Convention of Amateur Movie Club members and representatives.

E. M. CULBERTSON,
Past-President.

Oakland Finishes Picture

At the May 11th meeting, the Oakland Motion Picture Club completed the final shots in its trick and animation picture "Is Two Enough?"—utilizing practically every trick feature of Dr. H. Y. Lee's Cine-Special. The Club's Board of Directors is also considering the part their Club can play in the proposed National Association of Amateur Movie Clubs.

E. EUGENE LEONHART,
Director of Publicity.

Tri-City Meets with Stillmen

The May meeting of the Tri-City Cinema Club (Davenport, Rock Island and Moline) was the Fourth Annual Get-Together Meeting of the Tri-Cities still and movie clubs, with the Moline Photographic Society as hosts. In addition to print competitions and Kodaslide projection by the stillmen present, the cine group presented a program including "Cartooning Home Movies" (35mm. slides) and a 16mm. Kodachrome travelogue, "Guatemala—Land of Enchantment and Color," by Dr. James Dunn, with synchronized music by Mrs. Dunn.

GEORGIA T. FIRST,
Secretary-Treasurer.

Farciot Edouart

(Continued from Page 256)

course, standing second in his class—and was kept on at the University as an instructor, to teach others.

After seeing more than a few of his pupils go on to active service, he finally secured his own transfer to more active duties. He was assigned to the 78th Division as Chief of the Division's Photo Section, sent overseas and promoted to Sergeant. And from then on until the armistice, he saw enough action to suit anyone, for the 78th was at the front most of the time, participating in such offensives as St. Mihiel, Grand Pré, and others, first as an American unit brigaded with the British forces, and late ras a unit of the A.E.F.

It was at Grand Pré that he had the closest shave of his wartime career. The Germans held part of this picturesque village—still largely untouched by the war—and the heights above. The Americans were advancing on the village, across a little valley and the Loire River. As they got into the town, Edouart, in command of a three-man photographic unit, advanced with them. One man packed a still-camera; Edouart, a Bell & Howell, completely assembled with a 400-foot magazine in place on a back-pack, and a spare magazine and tripod to make sure he wasn't under-loaded; the third man carried film and accessories for the others.

Up the main street of the village they walked, remarking on how peaceful and untouched the place looked. Coming to a cross-street, Edouart instinctively paused for a moment at the corner. Just as he was about to step on across, a doughboy yelled to him to duck back. Down that innocent-appearing cross-street, he learned, was a German machine-gun, which had already taken toll of half-a-dozen Yanks who incautiously walked past the corner!

Still looking for a good photographic vantage-point, Edouart spotted the undamaged spire of the village church—just the place to get some good shots of the action, he thought. Up he went, climbing the inevitable long, spiral stone staircase which gave access to the tower. At the top, he found a perfect position for his camera, behind some louvres through which he could train his camera, unobserved, on the town. Glancing down, he noticed a surprising lot of troops in the nearby streets below. "My," he thought, "I hadn't realized we had so many men in the village yet"—and then he noticed that instead of khaki, they wore the German feldgrau!

While he was still debating as to whether to stay and get his picture, or leave and retain his health, the matter was decided for him. A sudden *whoosh* like the grandfather of all hurricanes shook the tower. A second later, another—on the opposite side—repeated the performance. A German field-gun had opened up on the advancing Yanks, its shells passing so close to the tower that the wind of their passage literally rocked its sturdy stone walls! Edouart started down immediately. But, as he says, "the weight of that loaded camera made a mighty unwieldy load, and it wasn't long before my feet slipped. Eighty pounds of assorted camera equipment saw to it that I kept on descending the stairs; only I finished the course in a sitting position—skidding the rest of the way down that long, bumpy spiral on my rear!"

Back in the street, he saw things happening at the far end of the village. The American artillerymen were expressing their disapproval of being potshotted at by laying down a creeping barrage—a curtain of high-explosive shells which was steadily advancing toward Edouart. Again he beat a very hasty retreat. "It must have looked funny," he says. "My two men were several yards ahead of me, running for all they were worth, and urging me to stop and get some pictures. I was doing as good a job of sprinting as I could, with that fully-assembled camera banging my back at every jump, but I couldn't catch up with them . . . somehow, you don't give much thought to getting pictures when you see solid stone buildings only a few hundred yards away jumping into the air in small pieces! The next day, though, I *did* get some pictures of Grand Pré: there were hardly two stones left on top of each other after that barrage did its work! I was quite as well satisfied I hadn't stayed to make pictures the day before!"

The division moved out of the front lines just before the Armistice. Edouart—in Paris to see to the development of his films—was "on the spot" for the most riotous of Nov. 11th celebrations, that day in 1918. Not long afterward, Edouart received his discharge from the Army, and was given a lieutenant's commission in the Red Cross as a special cinematographer. Sent to Germany as an official of the Armistice Commission, he had the interesting task of making motion picture records of the demilitarization of much of Germany's military plant and industry before he returned to Paris, and eventually to America, by this time a Captain.

Back in Hollywood, he learned that the studio had kept his old job open for him, but was given strict instructions to take a two weeks' vacation—with pay—before reporting for work. Only a few days of this had been spent, however, before telegrams from Washington and cables from Paris informed him that he was urgently needed to come back to Europe—at any price—to take complete charge of the Red Cross' motion picture work there. At length, persuaded by the offer of a Major's commission and a salary a good deal higher than most studio cameramen in those days received, he assented. Back to Europe he went, to bring order out of the chaos in which the thousands of feet of historical film had been left, and to tour the Balkans and Russia, filming post-war relief activities.

When he finally returned to Hollywood and civil life in 1921, it was to marry the very charming sister of his closest friend of the Columbia University days, and settle down with his own very successful photographic business. But studio activities soon lured him away from this. The man in charge of making glass-shots at the Lasky studio drafted him into this work, where his knowledge of photography, color-rendition and painting proved invaluable to the making of these difficult shots, which involved photographing a scene through a large pane of glass upon which was painted whatever was necessary to complete the actual portions of the set.

In due time Edouart found himself heading a special department of his own. He pioneered several processes of making composite shots by the complementary-color method. This, in its best-known form, placed behind the actual set and actors, which were illuminated with yellow-filtered light, a blue backing, which was lit with blue light. In the camera ,in front of the unexposed negative, was a "key" containing the desired background. This "key" was a motion picture positive, carefully bleached and toned orange. The yellow-lit images of set and actors photographed through this background film as though it wasn't there; but the blue light reflected from the blue backing served to print the yellow-toned background image on the film wherever there was no direct image of foreground set and actors, for the orange-toned "key" absorbed the blue light in proportion to the density of the "key's" image, much as a yellow filter absorbs the blue light from the sky. The result was that the background image, in action, was printed on the film behind the direct image of set and actors, so that the two appeared to have been photographed actually together.

But this process had severe limitations. The camera making the composite shot was rigidly anchored in one position; it could not be panned, tilted or dollied to follow the foreground action. The camera had to be specially adjusted, to permit passing the two films through its aperture. Worst of all, the background was never visible on the set, and nobody—even the cameraman—could be certain of the result until the rushes were screened the next day.

Therefore when the introduction of the first supersensitive panchromatic film, faster lenses and more powerful projection lights made it practical, many of the industry's "trick" specialists began to experiment with a process they'd long visioned—projecting the background-film onto a translucent screen behind the actors, and rephotographing the real and projected images with a foreground camera electrically synchronized with the background-projector. George Teague, at the old Fox Studio, was probably the first to use this process on production ("Just

Imagine"). Edouart was the second to employ it.

Since then, the process has become indispensable in modern production; scarcely a single feature goes out from any major studio without some "process-shot" footage in it. Some involve 75 or 80% of their entire footage in "process."

"Moreover," Eduart says, "producers and directors have constantly pressed us to give them greater scope, through the use of larger and yet larger screens. When the process was first used, a scene inside a closed car, with a screen six or eight feet wide, was something to be happy about. But before long, demand had forced us to find ways of using screens 12, 15, 18 and 20 feet across. But still came the cry for greater and yet greater scope. When we succeeded in using a 24-foot screen, we already had demands for shots that would call for a 36-foot screen. My most recent scenes have made use of twin screens totalling 48 feet in width—and the end is not yet in sight!"

Edouart's success in this work is due to an unusual combination of forward-looking imagination with an absolute passion for precision. You'll see it in the way he plans his shots. Every detail of camera-position and angles, composition and action is painstakingly planned out in advance, even to such minutiae as the lens to be used on the background-camera, its focal length, its focus and its height from the ground.

Edouart likes to point out that these transparency or background-projection shots are very seldom used to "fool" the public—except in such obvious instances as a "trick" picture like "Dr. Cyclops," in which the process, sometimes using a huge screen, sometimes a very tiny one, was used to produce the illusion that some characters had been reduced to very tiny dimensions, while to them normal-sized humans seemed giants. Instead, as he points out, "modern transparency or projected-background process-shots are used to give the public a better show for its money. Today, pictures have to be turned out with a definite eye to economy; and sending a troupe on a distant location, where they may have to wait for weather, and where sound, lighting and other factors aren't under complete artistic and technical control, can become prohibitively expensive. There are increasing restrictions on location-trip, anyway, due to today's wartime conditions.

"So today, the task of all of us, in every studio, who are engaged in this type of work is not to fool the public with camera-magic, but to help make it possible for the studios to turn out better pictures, with less expense and effort, yet with no sacrifice in quality or dramatic scope. Most of us are sincerely anxious to live down yesterday's publicity that branded special-process specialists as camera-magicians. We have a definite job to do, and we're trying to do it as perfectly as we can. The highest praise to any of us is the comment that one of our shots creates such a perfect illusion of reality that nobody takes it for a process-shot. If we can do that, and at the same time give the public a better picture, made more easily and efficiently than could be done by straightforward methods, we're content that we've done our job well." END.

"Sounding"

(Continued from Page 266)

screen, and with script and microphone before them. Inside the sound-control booth, Telefilm's sound-man Pete Gioga sat at the mixing-panel of the Berndt-Maurer 16mm. recorder, listening intently to the monitoring loudspeaker to check voice-quality, volume-levels, mike placement, and so on.

The musical accompaniment and sound-effects (also, in this case, from disc recordings) were played on a multiple-turntable reproducer in the sound-control booth, and fed into the recorder's amplifier. Recordist Gioga's task included controlling the volume-balance between this accompaniment and the actual voices.

After a few rehearsals, everything was announced ready for the first take. Since the picture measured slightly over 400 feet in actual length—417 feet, to be exact—and the recorder has a capacity of the standard 400 feet, the recording naturally had to be broken up into several takes. These were spaced so as to begin and end at points where there was a pause or change in the dialog, with transitions in picture and music at the same time.

In practice, this proved very useful, for it is amazingly easy—even with experienced professional narrators or actors—to go through perhaps 390 feet of a 400-foot take perfectly—and then slip up on the last few words! Breaking things down into several takes insures that if retakes are necessary, they'll be easy ones, perhaps for only a single, comparatively short sequence, rather than for the whole reel. It's helpful, too, in cases where your narrator's voice, after many rehearsals and takes, begins to get husky with tiredness or maybe plain nerve-strain.

Wherever necessary, cue-marks were made on the work-print, as, for example, slightly ahead of the fade-in of the opening title, to provide a cue for starting the music, which is supposed to come in in sync with the title's appearance. These marks can be made by punch-marking several frames of picture, or by marking three or four frames with full-frame X-marks with a grease-pencil. Where records are to start at any point other than the start of the recording, a similar cue-mark may be made on the record, using a white grease-pencil, and moving the needle through this white spot so that a very definite starting-groove is marked.

Recorder and projector are kept in step by having both driven by electrically interlocked synchronous motors, both of which are started from a single master switch under the recordist's hand.

The sound in this instance was recorded on reversal-type sound-recording film, since a positive sound-track image is necessary for making the final print on reversal-type Kodachrome. If the film had been made on black-and-white negative film, or if black-and-white release-prints were to be made from a dupe negative, negative-type sound-recording stock would be used.

After the sound-track film had come back from the processing plant, the various takes were segregated, and the OK'd ones assembled and played back, in sync with the picture, on the recording studio's special film-phonographs, which are essentially sound-film reproducing heads minus any picture-projection mechanism, and driven in absolute sync with the projector in the booth. In some instances, there might be two sound takes both of which were technically good, but which evidence some slight difference (in this instance, one sequence was recorded both with and without a certain sound-effect). Both of these were played back in sync with the picture, and the sound experts decided which of the two was most suitable. Finally, the several takes were completely assembled, and cut to synchronise absolutely with the picture.

Then this sound-track film and the Kodachrome picture-original were turned over to the duplicating laboratory, and in two successive printings, picture and sound-track were printed on a fresh roll of Kodachrome duplicating stock, in sync, but with the sound 25 frames ahead of its accompanying picture, to allow for the spacing necessary between the picture-projecting aperture (where the film must have an intermittent movement) and the sound-scanning aperture (where the film must have a continuous motion).

And then, at long last, the people who had worked so hard to make their picture a success had the thrill of seeing and hearing their picture in its complete form, with full color, background-music and sound-effects, narration and synchronous dialog which seemed actually to have been recorded at the same time the picture was shot, performed with no effort other than threading a single film into a sound-projector, turning a switch and sitting back to see and hear what they had done! END.

Picnic Scenario

(Continued from Page 265)

shakes him. Joe sleepily comes to. Nancy says: "Cuddles is gone. We'll have to look for him . . ."

CUT TO:

Title: "Cuddles is Gone. We'll Have to Look for Him."

Scene 46-A. (Finish of Scene 46.) Nancy finishes speaking, gets up.

CUT TO:

In Focus!

"I have a son in the Air Force and I want to make sure that he and his buddies have the best airplanes and equipment in the world.

"I can't build a plane myself, but I can buy War Savings Bonds that will help keep 'em flying. That is why I am signed up on the Payroll Savings Plan to invest every dollar possible in Bonds."

Victor Milner, A.S.C.

"I've got two darn good reasons for buying all the War Savings Bonds I can afford. First is: We've got to win this war and every dime put into Bonds will help do the job.

"Second: Money invested in Bonds is money saved for the future. It doesn't take a diagram to show that an investment which pays $4.00 for every $3.00 is worth going for. And if these bonds aren't worth while, I don't know what is."

Charles Lang, A.S.C.

"It's time we all chipped in and helped the boys who are doing the fighting in this war. Those of us who aren't in the thing with guns, can certainly get in to the limit in a lot of ways.

"The very first way is by signing up to buy Bonds and to keep on buying.

"Anyone who thinks it's an obligation is badly mistaken; it's an opportunity!"

Ted Tetzlaff, A.S.C.

Subscribe today to the Payroll Savings Plan through your Studio or other industry representatives.

Motion Picture Committee For Hollywood

WAR SAVINGS STAFF
TREASURY DEPARTMENT

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Scene 47: Medium-shot — Joe and Nancy. Joe yawns violently, not excited at all. Joe points for Nancy to go one way, he'll go the other. They'll circle and meet. Nancy hurries off to left. Joe yawns again, goes over to table cloth, dips finger in jam, and exits right.

DISSOLVE TO:

(If you cannot dissolve, fade to, and use title:)

Title: "Ain't We Got Fun . . . . .!"

Scene 48: Long shot—Cuddles—Pictorial setting, trees, brook, or location available. Cuddles is laughing, clapping hands together, having the time of his young life. Pa and Ma are furthest from his mind. (This shot and others in this sequence are for the purpose of capturing the scenic highlights of your outing.)

CUT TO:

Scene 49: Close shot—Cuddles. He is exploring anything at hand that is or is not worth exploring. But, he is having fun . . . !" He moves out of frame.

CUT TO:

Scene 50: Medium-shot—Cuddles. Cuddles walks past some bushes and disappears.

CUT TO:

Scene 50-A. Insert shot: (This should be some high cliff, high waterfalls; shot of tiger or lion at a zoo and, of course, no other people must be seen, or no bars of cage, and the background must be comparable to where you are shooting. In other words, some "danger" shot or impending danger cuts in here. The editor and director must use this according to good taste.)

Scene 51: Long-shot—Cuddles. Scampers into pictorial shot, romps a bit, then ducks again through bushes and out of scene.

WIPE TO:

(If wipe cannot be used, insert this title:)

Title: "Meanwhile . . . . ."

Scene 52: Medium-shot—Pictorial setting—Nancy (open cold set). Nancy enters through shrubs or bushes. She is slightly disheveled; almost in tears. She calls for Cuddles, then pushes on and disappears in the bushes.

WIPE TO:

Title: "And Still . . . Meanwhile . . ."

Scene 53: Medium-shot—Cliff as background—Joe. Joe shuffles into scene, hands shoved deep in pockets, every once in a while blasting: "Cuddles . . .!" He stops by cliff, noting it would make a good back of a chair, sits down and leans up against the bank. He sits on a stone, reaches under him for the tormentor, extracts it, and throws it up in the air and back of him. He yawns.

Scene 54: Close-up—Rock on edge of Cliff. A good sized boulder is teetering on edge of cliff. The stone Joe has tossed in the air hits this boulder and it falls downward.

CUT TO:

Scene 55: Close shot—Joe. Joe has mouth wide in yawn, when . . . smack! This huge boulder shaves his side and smacks down beside him, inches from his side. He freezes in the yawn, mouth stays open as his head slowly lowers to where boulder is keeping him company. He snaps jaws shut and starts to rise in a hurry.

CUT TO:

Scene 56: Medium-shot—Joe. Joe is in process of rising. He looks to left, then to right, then starts to dash off, falls full length in a cloud of dust.

Scene 56-A. Insert shot, new angle and more dangerous of 50-A.

Scene 57: Long-shot—Cuddles—Different location. Cuddles, away from camera, comes running from distance and full tilt into camera. (His body will be the cut.)

Scene 57-A: Insert shot—Still more intense shot of "Danger" insert.

Scene 58: Long-shot—Cuddles. Cuddles starts at camera, and continues to run, this time away and disappears in bushes away from camera.

CUT TO:

Scene 58-A: Insert shot—Close-up and most dangerous shot of the inserts.

Scene 57: Medium-shot — Nancy and Joe. (Open cold) A clearing is seen, nothing else. Then Nancy comes through shrubs or in from left. She stands center. She has been crying. Joe enters on the run. (Coming from the same direction, or moving by camera in same direction as last seen in 56.) He stops beside Nancy, looking back in direction whence he just came.

CUT TO:

Scene 60: Close shot—Joe and Nancy. Nancy cries on Joe's shoulder. Joe turns head toward Nancy, puts an arm around her shoulder and tries to comfort her. Nancy raises her head to Joe and speaks:

Title: "We Must Go Back to the Car and Get Help . . . !"

Scene 60-A: Same as 60. Nancy finishes speaking. Joe nods his head, agrees, pats her on the shoulder again, and they start to move right.

CUT TO:

Scene 61: Medium-shot — Joe and Nancy. Moving out of clearing and disappearing behind trees, bushes, or what is available.

DISSOLVE TO:

(If no dissolve is possible, fade out, then fade in.)

Scene 62: Medium-shot — Joe and Nancy—New location, but near picnic spread. (Moving in same direction as last seen) Joe and Nancy move into scene. They stop center, Joe gestures over his shoulder and speaks:

CUT TO:

Title: "The Picnic Stuff Is Just on the Other Side of the Bushes."

Scene 62-A: (Same as Scene 62.) Joe finishes speaking and they turn to pass through center bushes.

CUT TO:

Scene 63: Close shot—Joe and Nancy. Joe holds back bushes so Nancy can pass. He looks toward picnic spread, gapes, and grabs Nancy by the arm.

CUT TO:

Scene 64: Flash close-up—Joe. Joe, mouth open, eyes staring, then he exhales and closes mouth with expression: "Well, I'll be . . .!"

CUT TO:

Scene 65: Flash close-up — Nancy. Nancy looks at Joe, then turns head in direction he is looking. She cries for joy: "Cuddles . . ."

CUT TO:

Scene 66: Medium-shot—Tablecloth—Cuddles—Nancy and Joe. Cuddles is sitting in the center of the tablecloth. Food is on every side. He has the jar of jam firmly in hand, and what isn't in the jar is on his face. (Nancy enters first, Joe follows) Nancy is almost to Cuddles.

CUT TO:

Scene 67: Close-up—Cuddles—Nancy's hand. Cuddles is laughing and smearing jam from jar to mouth. He looks up as Nancy's hand is seen.

CUT TO:

Scene 68: (Same as Scene 66.) Nancy plucks Cuddles from the table. Cuddles still hangs onto jar of jam. Nancy takes the lad in her arms and stands up with him as Joe comes alongside.

CUT TO:

Scene 69: Low camera-angle — Joe, Cuddles, Nancy. Framed against clouds, tree foliage, if possible, Nancy is too happy to see the little rascal to do anything but hug him. She gets a good quantity of jam on her face. Joe points to Nancy's face and laughs heartily. Cuddles reaches over and smears jam on his father's face.

CUT TO:

Scene 70: Close-up — Joe. Jam is spread in profusion over his features. He stops laughing for a moment, then continues his hearty laugh.

CUT TO:

Scene 71: Close-up—Nancy. Nancy, too, is laughing, looking her prettiest and with a good quantity of jam on her face.

CUT TO:

Scene 72: Close-up—Cuddles. Cuddles, too, is laughing, clapping hands, and can almost be seen behind the mask of jam on his tiny features . . .

CUT TO:

Scene 73: (Same as Scene 69.) All are happy, Cuddles is back, then continue to laugh and hold positions . . .

SLOW FADE TO:

Title: "The End."

Composition

(Continued from Page 263)

matic film, the yellow canvas of the chair is likely to dominate, because yellow photographs lighter than red—almost white, in fact—and because it is rendered whiter by being in the sun, while the gray rendition of the red dress is toned down by being in the shade.

In Technicolor or Kodachrome this becomes a serious problem. In any process of color photography, red and blue are the dominant colors. Even a little spot of either of them, well in the background, can dominate a scene in which your subject is of a more neutral color. I recall seeing in one fairly recent professional Technicolor feature

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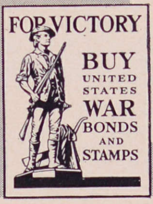

a medium-shot of one of the screen's most glaromous blondes (clad in fairly pastel-shaded clothes) which was badly harmed by the fact that far in the background an unknown and unimportant extra-girl in a blue dress kept dancing by. In another film—an otherwise excellent 16mm. commercial picture—I recall an exterior shot where your attention was pulled forcefully away from the real object of interest by a red Coca-Cola sign in the background, more than a block away! And the editor of this magazine is fond of remarking how, in a test he made years ago of the old 16mm. Kodacolor process, a close-up of an extremely pretty girl was weakened by the fact that in the corner of the frame beyond her left shoulder (and nearly two blocks away) there appeared a bit of a rather brilliantly sky-blue stucco house, just at a point where no sky ought naturally to be! Yet viewed visually, through the finder, there was nothing distracting in the scene! The trouble only showed up on the screen.

A whole book could be written about the uses and dangers of motion. It ought to be, too, for it's the one factor the movie-maker has to contend with that the still-photographer and the painter don't, and which accordingly hasn't been given much attention in print. The basic fact to remember is that motion in itself attracts attention. This is true even in real life; it's doubly so where your view is restricted to the relatively small area of a movie-screen. The faster the movement—up to the point where it becomes photographically blurry—the more strongly it attracts attention. Similarly, a rhythmic movement is likely to draw more attention than a regular one.

A moving object can often draw attention away from a non-moving one, or from one that moves only little, or slowly, even though the latter has the advantage of position, size, and tonal value in the composition. A good example of this is a close-up of a girl standing beside a fountain or waterfall. Unless the girl herself is decidedly animated, the regularly-falling water from the fountain is likely to steal the scene. Even though the girl's face is in the compositionally strongest position, the regular movement of the water is going to draw your eyes away from her, and pull them back again and again.

You can make movement work for you, or let it work against you. Simply see to it that whatever you want to dominate your scene is kept moving somewhat — preferably with a rather regular motion—rather than remaining static. Or, on the other hand, if your chief subject isn't going to be indulging in much physical movement, see to it that you exclude from your shot anything that is likely to move more prominently or more regularly. Getting back to your hypothetical shot of the girl beside the fountain, move in closer, so that you close-up on just the girl, and eliminate the falling water from the fountain!

The illustrations, I think, show some of these points very clearly. If you'll look at the left-hand picture at the top, you'll notice that though it's supposed to be a long-shot of two people, you're really rather more conscious of the fountain in the right foreground. There are several reasons for this. First, the people aren't on or anywhere near the upward left-to-right diagonal your eye follows, and there's nothing along it to re-direct your eye toward them. Secondly, the fountain is not only in the commanding position along that left-to-right diagonal, but is also closer to the camera, and emphasized in tone as well, being inherently light-toned, and strongly sunlit to boot.

In the right-hand illustration, we have the same picture, but the artist has modified it to show how much better a picture the cameraman would have gotten if he had just waited a comparatively few moments, until the natural advance of that shadow in the foreground moved on to throw the large, white expanse of the fountain into shade, subduing its tonal strength.

The other picture tries to hint at the problems of motion in composition. The man is excellently positioned, but his face is necessarily in a lighter tone than the flame of the torch. That flame, though it's in a weak position compositionally, tends to dominate the scene, even in this still. On the screen, in motion, the flickering movement of the flame would almost inevitably dominate the scene. The most effective course would be to show the torch in a fairly long-shot angle, and thereafter, if the man's action and expression are important, cut to closer shots of his face—minus the torch—and perhaps suggest torchlight by casting a fairly flickery, shifting key-light on his face from about the angle you'd expect the torch to illuminate him.

Finally, remember that all of these principles outlined can work together, either to your advantage or against it, as you make them. If they work *for* you, you'll find that composition isn't anything far-off and "arty," but something very practical which will help you make better pictures—every time! END.

Filtering

(Continued from Page 262)

much, though in some cases they may be lightened a bit. The yellow is turned almost white by the relatively increased exposure it gets. The green is decidedly lightened. And the blue and violet are rendered much darker, because they've had less light getting through to give them an exposure.

Next, put on a red filter. You can expect this to hold back all of the blue and violet; to slow up the blue component of the green; and to let the red, orange and yellow rays go through strongly. Figure 3 shows that is precisely what happens. The blue has been turned almost black by the red filter used (a Wratten 25-A), and the violet is very dark, too. The red, orange and yellow are lightened tremendously. If the film used had been more strongly red-sensitive, or the filter used a deeper red, the red could have been made to photograph so light a gray it would be almost pure white, while the blue would have appeared even blacker.

Now, suppose we want to try a green filter, which some experts seem to think a great deal of. Theoretically, you'd expect it to lighten the green considerably, and to darken both the red and the blue. Figure 4, made with a medium green filter (an X-2) shows that this is precisely what happens.

But say you want to lighten the blue, and to make the red end of the spectrum render unusually dark. What filter would you use then? Well, if a red filter turned blue to black, and made red appear white, why wouldn't a blue filter do just the opposite? It will. A blue filter will render blue and violet almost white, and will make red, yellow and orange come out extremely dark. But a simpler way to get very nearly the same result would be to use some of the old-fashioned "color-blind" film, which is still available as positive film.

From all of this we can establish some very definite facts about filters and what they do. *Yellow filters* will lighten yellows considerably, also orange and green to a lesser extent. They'll darken blues, and leave reds very little changed.

Red filters will lighten reds, orange and yellows very greatly, darken blues strongly, and make little change in the greens.

Green filters will lighten greens considerably, and yellows as well, but will bring reds and blues to a surprisingly similar shade of dark gray.

Blue filters will lighten blue greatly, and may lighten greens that have a good deal of blue in them, but will render yellows, oranges and reds very dark.

The precise effects will always depend on color-density of the filter you use, and upon the color-sensitivity of the film you use it on. Obviously, you'll get less effect from a light-colored filter than from a deeper-colored one. In the same way, if you've a film that's more than ordinarily sensitive to green, you'll get a lighter rendition of green from any filter that will lighten that color; and if your film is strongly red-sensitive, you'll get a lighter rendition of reds when using a red filter, because you're starting out with a lighter-toned unfiltered rendition of that color to begin with.

In all of this, you'll notice not a word has been said about exposure or filter-factors. That is because these exposure-factors change according to the particular characteristics of the film you happen to be using. For example, the deep red Wratten 29-F filter has a factor of 16 when used on DuPont "Superior 1" negative, which is only normally red-sensitive, yet the same filter, used on the more strongly red-sensitive "Superior 3" has a factor of only 5! Also—within the limits of your film's lati-

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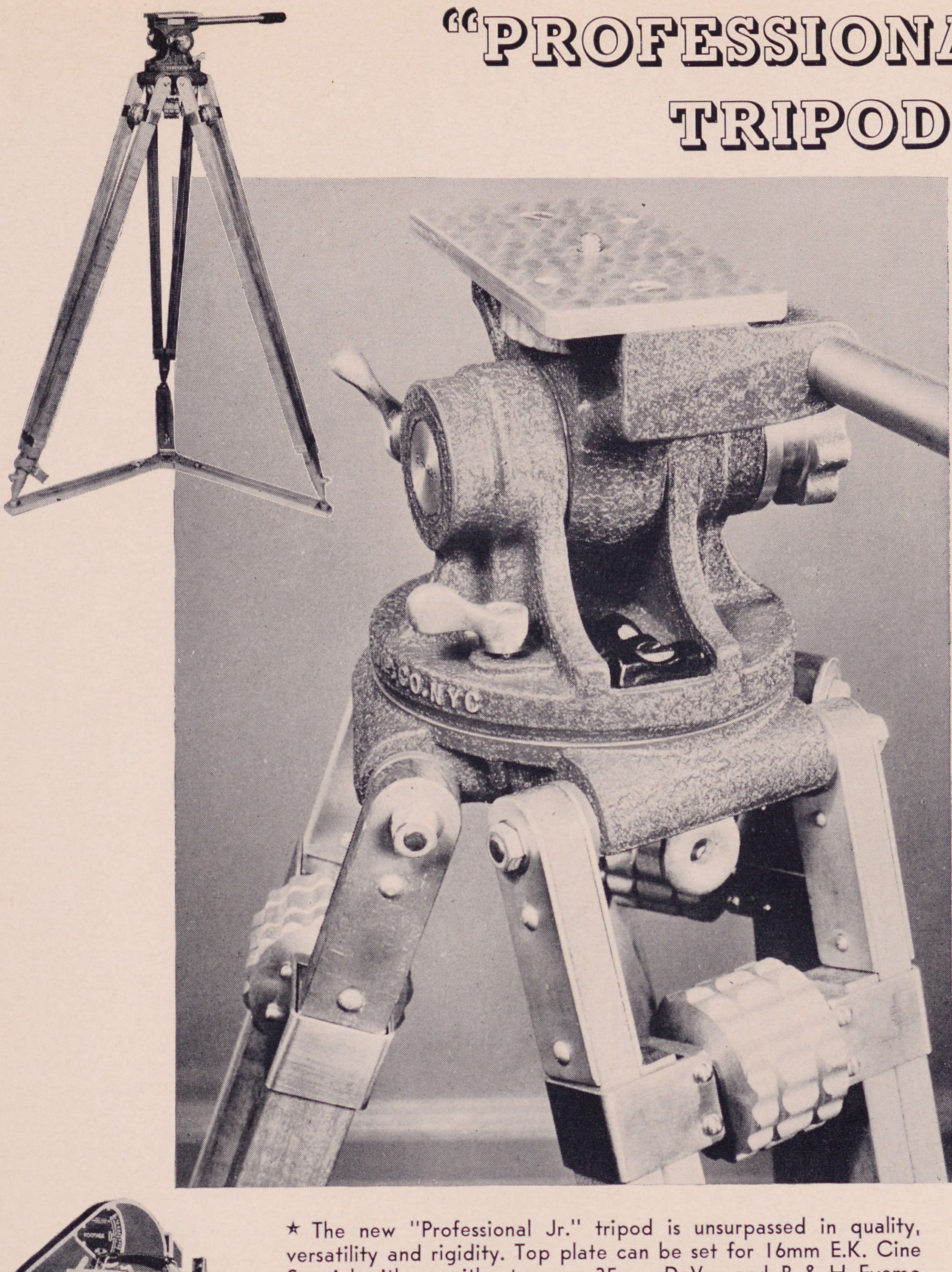

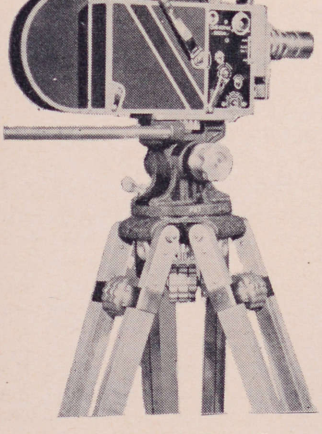

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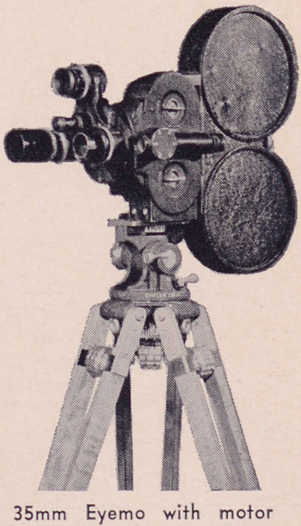

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tude—you can to a surprising degree alter the apparent effect of your filter according as you expose normally, or under- or over-expose slightly. With overexposure, the effect is minimized; with a slight underexposure, it can be surprisingly exaggerated.

Therefore, unless you are going in for highly exacting work, and are a master of filtering and exposure as well, you really don't need many filters. For most practical purposes, you can get all the effects you'll usually want with only two—or at the most, three—filters: a good medium yellow one for most shots, and a medium red one for more heavily-filtered ones. You can add a very deep red one for occasional strongly overcorrected pictorial and night-effect shots with jet-black skies, if you want to; but it isn't really essential.

Every bit as important as knowing how to use filters is knowing when *not* to use them. There are times when the use of a filter will definitely hurt your picture, rather than help it. And there are times when no filter of any sort will do you any good.

For example, it's almost always a good idea to think twice before using filters on shots (other than filtered night-effects) in which there are people. When you're out on a pictorial location, and maybe have a nice sky filled with interesting clouds, I know it's a temptation to slip on a filter that will overcorrect that sky and make the clouds stand out for all they're worth. For the long-shot angles, it may be all right to do it: but on the closer shorts, filters that darken the sky and make the clouds stand out prettily will also tend to lighten the face tones of the people. This effect is of course proportionate to the sky-darkening effect of your filter; a heavy red filter, for example, will turn faces chalk-white, and completely remove the lip-makeup of your pretty girls.

In a case like this, it's best to follow the professional's example, and keep your filtering uniformly light all the way through, governing your long-shot filtering by the heaviest filtering you dare use in the closer angles.

There are also times when the best filter to use is—none at all! For example, there are hazy days. Yes, I know that the "experts" say a deep red filter will cut through haze in a long-shot—but they're careful to avoid saying just what kind of haze! Heavy filtering will do a pretty good job of penetrating ordinary distant haze—the kind that veils the extreme distance on clear days. But when it's a water haze, caused by moisture in the atmosphere, which makes the sky appear an indeterminate, whitish gray with only a suggestion of blue, no filter will do you much good. The same thing is true when you're faced with a smoky haze, caused by the smoke of a big city, a forest fire or (here in California) by the smoke-pots our citrus-growers use to protect their groves in cold weather. The air between you and the distance is filled with millions of tiny particles of black carbon (that's what smoke is, you know), and no mere filter is likely to do the miracle of sweeping that sooty veil aside for you. Yet times without number, I've seen amateurs (and professionals, too!) make a shot under such conditions, screen the disappointing results, and sorrowfully ask, "Why didn't I get my shot—I used a filter, didn't I?"

Another time when filters aren't necessary is when you've nothing in your shot for the filter to work upon. Remember, filters get their effects by lightening some colors, and darkening others. If both of those types of colors aren't present in your scene, you're not likely to get much effect from filtering. And if your scene is composed largely of one type of coloring, which your filter will uniformly lighten or darken, you'll certainly be worse off if you attempt to use a filter.

For example, in many snow scenes, all you have to shoot is white snow and black trees: no filter is going to change this relationship. And if you use, say, a red filter to darken the sky, you'll still have white snow and black trees—with the trees largely lost against the jet-black background of the over-filtered sky. In the same way, in many seascapes your scene is largely blue sky and blue water, extending off to the horizon where they meet. If you use a filter that darkens blue, both sea and sky will darken pretty uniformly; if you use one that lightens blue, they'll lighten together. Either way, you won't get any separation between the two.

Sometimes you'll have a subject in which different parts of the landscape are of different colors which, unfiltered, photograph in different values. If you put on a filter, you are very likely to upset this balance and make both things photograph in very nearly the same tone. The silver-painted air-raid siren against a red brick wall, mentioned last month by Clyde De Vinna, A.S.C., is a good example: shot without a filter, the red of the bricks would come out fairly dark, but photographed with a red filter, the red would render almost as white as the silver paint on the siren.

Out here on our western deserts, we often encounter scenes that are composed largely of yellow or yellow-orange sand and reddish rocks. Photographed without a filter, there's a natural separation between sand and rocks. But put on a red filter—or even one of the heavier yellow ones—and you find the rocks lightening in tone until there's little or no difference in the tone of the rocks and the sand around them.

So, before using a filter, it's always a good idea to analyze the scene before you shoot. Ask yourself "What colors are there in this shot? How will my film render them without a filter? What color-renditions do I want to change? And are there any colors that will be rendered less satisfactorily with a filter than without?" This little mental cross-examination will usually solve your filtering problems. And better than half the time, if you answer yourself honestly, they'll answer it by advising you *not* to use the filter. When you screen your rushes, you'll usually find it pretty good advice, too. END.

Projection—Unlimited

(Continued from Page 261)

switches, as in a hall or at top and bottom of a stairway.

Throwing this switch will then stop one projector and start another. By plugging into each outlet an eight and a sixteen projector it is possible to switch between the eights and the sixteens, or any combination of the two by pre-setting the controls on the projectors.

To allow for projector use in rewinding, etc., while one projector is showing a film, a single-pole, single-throw switch, the usual type found in homes, is used to connect the two sides of the control switch, thus feeding current into both of the double outlets simultaneously. When the rewinding or checking is completed, this switch is moved to the "off" position and the switches on the next projector to be used are set so that lamp and motor will turn on when the control-switch is thrown.

The house-lights may easily be controlled where there is fairly regular use of the same room, by a minor alteration to the light-switch faceplate which allows a jack plug to be inserted and a double wire run to the projection-booth, where it is connected across another regular house switch, which may be mounted underneath the projection board. When this switch is thrown to the "on" position the electric circuit is completed through the regular house switch, lighting the room-lights. With this arrangement it is also a simple matter to add a rheostat to the circuit to allow dimming the lights from the booth.

On the projector-shelf four trays should be arranged in which each projector sits snugly, yet which are pivoted to the shelf by a bolt to allow for proper aiming of each projector. For each tray an adjustable stop may be made from a piece of slotted plywood fastened to the shelf by a carriage-bolt and wing-nut, or as we did, utilize four door-stops of the type intended for use on the bottom of a door, having a rubber bumper on the end of a spring plunger to be pushed by the foot so that it is wedged against the floor. These are positive and quick to adjust when used as a stop against the side of the tray. As a further refinement we have placed each tray on four glide casters, and between the tray and the projector-shelf arranged a coil spring with tension sufficient to hold the projector in line against the stop, yet allowing it to be turned for ease in threading or checking.

The completed booth has cost the club about twenty-five dollars, and so far there has been no complaint that the money was unwisely invested. Now, after a smooth, confusion-less show the members in general have agreed that "Yes, something *was* wrong, once!" END.

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Army Cameramen

(Continued from Page 255)

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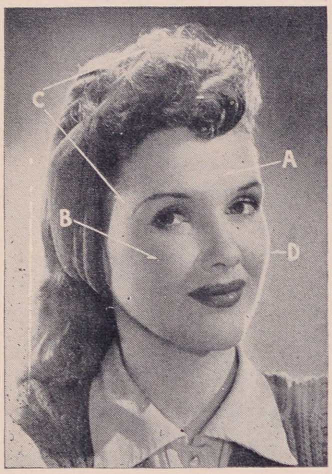

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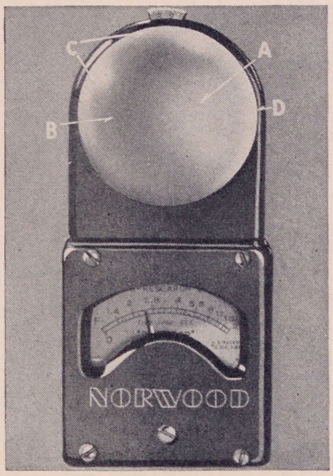

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Professional 16mm. Films

(Continued from Page 254)

tive films, DuPont offers three types, two of which can be used interchangeably as either negative or reversal emulsions, and the third of which, due to an anti-halation backing which can be removed only by the reversal bleaching bath, is exclusively a reversal product. These are the moderate-speed "Superior, Type 314," an exterior film; the considerably faster "Superior, Type 301," an all-purpose "production" film; and the super-speed "Superior Reversal Film, Type 302."

There are many factors which enter into the choice between making 16mm. black-and-white Professional Productions by the negative-positive system or by the Reversal-dupe negative-positive method. Generally, the producer who has specialized in one or the other method will have great praise for his preferred method and will grant little merit to the other method. A careful examination of all the facts will reveal that each method has its good points and a field of use in which it has the edge.

One of the most important considerations in making the choice between the two methods is the purpose to which the completed film will be put. If the film will be used by inexperienced operators in all of the existing types of sound projectors, and will be subjected to continued and hard use over a period of years—and such conditions do prevail in the use of educational films in the classroom—then a primary consideration will be making prints which are standard for existing projectors, which resemble other educational releases as to emulsion-position and which will stand a great deal of wear.

Because 16mm. sound projectors came out at a time when there was little if any "direct" 16mm. production going on, they were designed to handle most efficiently the type of 16mm. film then generally available—ie. 16mm. reduction-prints from 35mm. originals or from 16mm. reversal originals. The sound optical system was focused on the emulsion-side of the film, which faced the exciter-lamp when a reduction-print was used. The picture aperture was designed so that, in general, bearing surfaces of the machine touched only the acetate base of the film or the edges of the emulsion-side of the film. It has been an accepted fact that the emulsion side of any film is more fragile and susceptible to wear than the film base of cellulose acetate, so it is only natural that projectors were designed to minimize contact with this emulsion side of the film.

Another factor which contributed to this design was the fact that all 16mm. silent projectors were designed primarily to handle reversal originals, which had the same emulsion position as reduction-prints—ie. had to be projected with the film-base toward the light-source. In the conversion to sound projectors, it was natural and easiest to retain the previous design for picture projectors as far as possible, and at least as regards emulsion-position.

This was done and the emulsion-position of original reversals and 16mm. reduction-prints was adopted as the "standard" emulsion position for 16mm. It is important to point out that this "standard" emulsion-position for 16mm. is just the opposite of the "standard" emulsion-position for 35mm., and was agreed upon as a matter of convenience considering the films available at that time.

If a "standard" were to be agreed upon now in the ligth of several recent technical developments, a more logical choice would probably be a "standard" emulsion-position in 16mm. which is the same as the "standard" emulsion-position in 35mm. The reasons for this are the following:

1—16mm. optical reduction-prints could be made with either emulsion-position, merely by changing the position of the printing negative and re-focusing the optical printer.

2—Kodachrome duplicates at present can be made satisfactorily only from originals and by contact printing. This results in the so-called "non-standard" emulsion-position for Kodachrome duplicates and the consequent greater wear when projected in machines designed for the "standard" emulsion position of 16mm.

If a satisfactory optical one-to-one 16mm. printer is ever perfected, of course, either emulsion-position could be obtained with Kodachrome duplicates. 16mm. one-to-one optical printers have been made, but the results have not been considered acceptable by critical experts in comparison with contact prints.

3—Several new fine-grain emulsions for both picture-negative and sound-negative have been made available in recent years which make direct 16mm. production on negative film entirely practical. Of course, 16mm. prints from 16mm. original negatives have the same emulsion-position as 35mm. prints, which is the so-called "non-standard" emulsion-position for 16mm.

Since it is possible that 16mm. negative production as well as Kodachrome production will expand considerably, a revision of these present "standards" might well be considered. The only method of producing 16mm. films which would suffer from such a change in "standards" is the reversal-duplicate-negative method. But if duplicates were made on reversal film instead of from an intermediate dupe negative, these prints would also have the same emulsion-position as 35mm. prints, 16mm. Kodachrome duplicates and negative-positive system prints. This method of duplicating is more expensive, although it gives excellent results and was used exclusively by reversal producers until the development of fine-grain duplicating negative emulsions.

In spite of the above facts, it is very unlikely that any change in projector design will be made at least "for duration," so it becomes necessary for the 16mm. producer to choose a method of production which will give the best results on existing projection equipment. One of the strongest arguments in favor of the reversal system is that it gives prints which are in accordance with the present 16mm. standards. Prints from original 16mm. negatives cannot be made at present in 16mm. standard position. If a one-to-one optical 16mm. printer is made available in the future, it could be used to obtain 16mm. standard prints from 16mm. negatives. Also, if it were possible to make a reversal duplicate negative from the original 16mm. negative, prints from the reversal duplicate negative would be 16mm. standard emulsion position. It is entirely possible that fine-grain reversal duplicating negative emulsions will be available in the future to accomplish this.

Since reversal originals yield prints with standard emulsion-position and hence are subject to less wear, this method of production has a definite edge over original negative-positive system prints when the length of life of prints is a very important consideration. In the battle of Reversal vs. Negative, Reversal seems to have won round one when consideration of emulsion position, wear and sound reproduction on existing projectors are at stake.

With the exception of some of the newest models of sound projectors, the sound optical system of 16mm. projectors has a fixed focus, set to focus the sound image of reduction-prints of 16mm. standard emulsion position. When non-standard prints are used with these machines, the sound image is on the opposite side of the film and is not in the plane of sharpest focus. If the lens system is very critical in its focusing, the sound will in-

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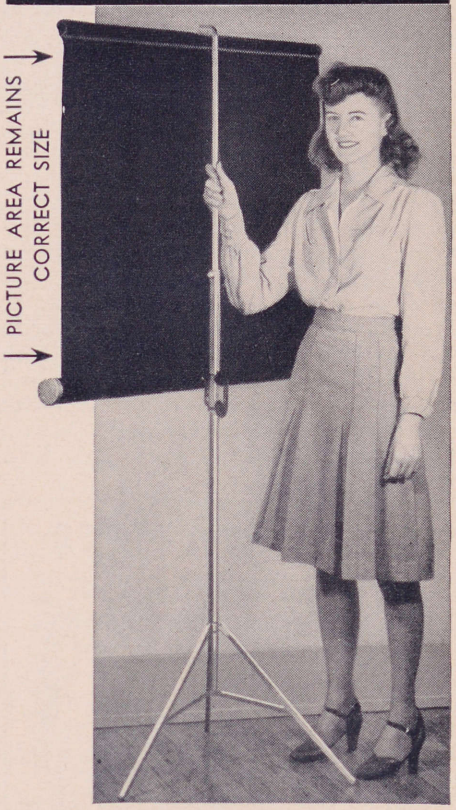

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evitably lose some of the high frequencies due to the fact that the image is slightly out of focus.

The Eastman sound projectors, the Bell & Howell, and a few others have a focusing optical system that may be set for either standard or non-standard prints. Since Kodachrome prints are always non-standard, a projector which is used to project both Kodachrome and reduction prints should by all means be equipped with an adjustable sound optical system.

The reversal process by its very nature insures a finer grain-structure than is possible in the negative process. The reason for this is involved in the crystalline structure of all emulsions-negative or reversal. A negative or a reversal emulsion consists of crystals of silver bromide of various sizes held together in the gelatine of the emulsion. In both emulsions, there are large, medium and small-sized crystals. The large-size silver bromide crystals are more sensitive to light and are effected by the light first.

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In development, these larger crystals form the negative image in either negative or reversal films.

In the case of negative films, the smaller unaffected crystals are dissolved in the hypo solution after development, leaving a negative image composed mostly of the larger crystals.

However in the reversal method, the negative image composed of the larger crystals is bleached out after development. The final positive image is composed of the remaining smaller, less sensitive silver bromide crystals which are exposed in the processing machine and then developed. Thus it is inevitable that the reversal image has a finer grain than a negative image.

However, this does not tell the whole story. To get full advantage of the finer grain in the reversal original, fine-grain materials must be used in the preparation of the duplicate negative from the reversal original, and in making the prints from this duplicate negative. If standard positive film is used in printing these reversal dupe negatives, the advantage of the reversal's fine grain may be nullified to the extent that prints from the reversal-dupe negative may have no grain advantage over prints from original negatives. As in 35mm. there are some high-speed negative materials available which will yield an image of finer grain than standard positive film. So, for all practical purposes, if prints are made on standard positive film, the difference in grain-structure between reversal and negative is negligible.

If prints are made on fine-grain positive film, the finer grain-structure of the reversal original will become evident in comparison with prints from original negatives. However, if the original negative is properly exposed and developed, the grain structure of negative-positive prints is very small and by no means objectionable. It is a well-known fact that overexposure can increase grain-size in negative films, so that proper exposure must be watched as closely in negative films as in reversal films.

It is also known that the type of developer has a great influence on the grain size, and for best results in 16mm. negative work, only true fine-grain developers should be used. Over-development also increases grain size.

One of the principal reasons that negative-positive system production has not been used in 16mm. as extensively as reversal is that most processing laboratories have not given 16mm. negative processing the same care that has been found necessary with 35mm. negative processing, and that is almost always found in the 16mm. reversal laboratories of the major firms Indifference and careless handling of 16mm. negatives in developing and printing has resulted in a product which was not a credit to producer or laboratory, and gave the film a black-eye it did not deserve. However, the fault was in the handling of the film, rather than in the process itself. With negative processing and printing done by laboratories which specialize in handling 16mm. such as the Precision Film Laboratory in New York, there is no reason why excellent results as to grain, gradation, contrast and cleanliness cannot be obtained.

Negative film definitely has the advantage over reversal film when it comes to latitude — which is another way of saying that negative film is capable of recording a wider range of brightness-values than reversal. In the language of photography, negative film has a longer scale. If negative film is used to record a subject with a short scale of brightness-values, this means that exposure is not so critical—that the photographer can place his scene on the lower, middle or upper part of the film's characteristic curve and still get proper tonal reproduction. This also means that slight errors in exposure are not as serious in negative as in reversal shooting. While, theoretically, it should be possible to get every exposure correct, this does not happen every time, especially when the cinematographer as is so often the case in industrial film production, is performing under pressure.

The definition of just what is meant by a "correct" exposure is of considerable interest. For the reversal process, a "correct" exposure is one which reproduces the tone-values of the original subject when the film is processed without any special adjustment of the processing machine. In theatrical 35mm. practice, a "correct exposure for one studio may be the exposure which reproduces the tone values of the subject when the negative is developed in their laboratory and printed on a certain printer-light about in the middle of the printing scale. For a different laboratory and printer combination, this "correct" exposure might not be at all correct. If the brightness range of the scene is not as large as the brightness range of the film, there may be several theoretically "correct" exposures.

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The extra latitude of negative film may mean the difference between an expensive retake and a satisfactory original take. Negative film is capable of registering shadow-detail much better than reversal and for certain special-effect scenes with low-key dramatic lightings, it renders results which cannot be equaled in reversal.

This is partly due to the fact that reversal films are designed for the amateur and the processing usually attempts to compensate for errors in exposure which amateurs frequently make. This compensation is frequently automatic and is accomplished by a photoelectric cell which regulates the intensity of the exposing light which reverses the image. To the commercial or educational producer, this is not apt to be an important factor since his work is not likely to include production which require much, if any, effect-lighting.

(To Be Continued.)

Navy Films

(Continued from Page 253)

reau of Aeronautics to procure that film. If it is a question of procuring that film by having it produced, then we designate an officer to represent the Bureau of Navigation as our expert in the production. This officer then controls the production, working with the commercial producer contracted with through the Bureau of Aeronautics. In a few instances, the films may be made entirely by naval personnel, since many of our enlisted men are being trained as cameramen, and are being used to make films for various purposes not appropriate to civilians.

Individual naval officers at various places have manifested considerable originality and initiative in developing visual aids for specific purposes. I have seen, for instance, a combination of motion picture, film-strip and disc recording, which was used to teach some of the principles of the detection of submarines by underwater sound. I have also seen an excellent sound film-strip on "Man Overboard Drill," made by an officer who teaches seamanship at one of our training schools for young officers. There are other examples of this initiative in the development and use of audio-visual aids. The Aviation Service Schools train the many thousands of mechanics needed to serve our naval aviation, and the officers conducting these schools have developed an elaborate collection of visual aids, motion picture films and film-strips covering almost every subject taught in these schools. They have even developed a series of visual aids which teach the teachers how to teach. This is useful, since many of the men giving instruction in the Aviation Service Schools have not had previous teaching experience, even though they do know their subjects thoroughly.

All the films produced by the Army Signal Corps or by the Research Council of the Academy of Motion Picture Arts and Sciences for the War Department are reviewed by the Navy, and, if they have an application, are utilized by the Navy. The Navy also uses films produced by other agencies of the United States Government, such as the United States Office of Education. This organization recently produced and is still producing a number of films on machine-shop practices, showing how to use various machine-tools. These have considerable value, and are used in many of our schools.

There are a number of commercial producers of training films, some of whom have produced films on their own initiative or for the use and distribution of large industrial concerns. Many of these films have been evaluated, and some of them are useful to the Navy.

I may add here that where our films are not confidential in nature and may have applications for public use, they are to be made available for public distribution.

There is another source of training film material which has not been very deeply tapped as yet, and that is the enormous amount of films which have already been made in one connection or another, and which, by cutting and splicing and editing, can be made into useful training material. There are a number of films made by the British government for the instruction of the personnel of their armed forces and some of these have considerable value. All of these are evaluated for naval purposes and the Navy is now using audio-visual aids from all the sources mentioned.

I cannot close this discussion without referring to the contribution of the motion picture to the fourth of the four essentials to victory that I mentioned. You remember that they were numbers of men, equipment, training, and spirit or morale. The United States Navy has never had to worry about the morale of its men, but that does not mean that the motion picture cannot contribute greatly to the maintenance of American

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naval morale. The motion picture show aboard ship is a regular institution, and it is never omitted if it can be helped. This, of course, is for entertainment purposes, but the motion picture now also serves the purpose of giving to the American bluejacket some idea of our allies—the United Nations fighting side by side with us. The motion picture also helps to remind the American bluejacket of the country which is behind him, of the activities of its civilians, and of the other armed forces, and of the outward manifestations of the basic principles of democracy which are fundamentally involved in this world conflict.

So you can see from this necessarily brief discussion that the motion picture is important to the Navy. Those who are important to the motion picture should remember this and help to make that importance greater, more significant and ever more contributory toward our eventual victory.

In conclusion, I should like to leave with you this thought: One of the most important aspects of civilization is the transmission of ideas. The motion picture film is, as you know well, a potent factor in this field. Its use for entertainment has been developed to a very high degree; its use in training and in education is only beginning. And yet the application of the motion picture film to training and to education may in the end be far more important than any of us imagine at present. Even now it may be of vital importance in building the efficiency of our armed forces today; and it can surely play a great role in developing the minds and spirits of young and old in the future.

In the past the motion picture industry has not lent its best brains, its greatest talent, its most creative potentialities to the making of films for purposes of training education. This use of the motion picture film, however, is fully worthy of the closest attention of the ablest technicians and the greatest brains this industry can boast. The rewards may not be measured in dollars to the same extent that the production of films for entertainment may be measured in dollars; but the nature and quality of the contribution made, and the permanent value of that contribution will bring satisfaction which cannot be compared with that of the ephemeral success represented by a "hit." END.

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Animation

(Continued from Page 251)

picks up will have little problems that are peculiar to itself. It would be impossible to lay down a specific set of rules that would govern procedures on every scene an animator works on. There would have to be as many sets of rules as there have been scenes animated in all the cartoons ever produced. However, there are certain general procedures concerned with animation mechanics and timing that remain constant and applicable to most any animation problem.

The animator becomes pretty thoroughly saturated with the intent and purpose of the scene prior to actual animation, through a meeting with director, in which the story action has been carefully described and timed down to its smallest component. He is provided with the working set-up of the scene by the layout-man, indicating position, size and path of action of the character or characters, and diagrams of camera moves. An exposure sheet (see illustration) is made out, indicating action in relation to the footage of the scene. Of course, drawing numbers and specialized camera instructions are not on the exposure sheet at this point, as these details are added by the animator during the production of the scene.

Before actually starting to draw, the animator will probably sit quietly, deep in thought, going over the action in his mind, trying to visualize it as it will look. Different animators approach the animation of a scene in as many different ways, but one generally accepted procedure is to make a flock of small, rough action poses on a sheet of paper, illustrating the general routine of action. He'll fuss around with these little sketches to get good suggestions for present and future animation drawings, until he figures he has the "feel" of the scene. Then is the time to start animating, laying out the rough key poses of the action on the working layout.

Illustrated are some original animator's roughs that were drawn for a scene in "Bambi," Walt Disney's newest feature. The scene is part of a sequence in the picture dealing with Bambi's misadventures on the icy surface of a pond. The action represents Bambi in the act of responding to his rabbit pal's invitation to join him on the ice, taking off from a small hill and running down toward the pond.

The scene constituted a very simple set-up, with just one character, no dialog, and no camera moves. The action was timed out to take four feet and twelve frames of film, and was laid out on a "free beat" musical tempo, meaning that the animator didn't have to design his action to follow a rigid musical rhythm, but could place the accents of his animation where they would occur during the natural course of the action.

But before getting into the animation process, time out might be taken at this point to explain about a few of the more technical aspects of animating, in order to give more meaning to the detailed explanations to follow.

Animators work on two sizes of paper, one measuring 10x12 inches, the other about 12½x15½. The smaller is called a "5 field" paper, the larger, "6½ field" —known as such by the largest area that the camera can photograph on each paper. Along the bottom of each sheet are punched five holes, which fit over pegs on the animator's drawing board and are for the purpose of accurately registering drawings through all stages of production. Corresponding pegs are fitted to the inkers' tracing-boards and on the cameras.

The area of the drawing that the camera photographs is called a "field." These fields can vary in size from a close-up to a long-shot. A table of field-sizes has been standardized, ranging from a 2, which covers a very small area on the paper, up to a 6½, which calls for the use of the largest sized animation paper. Most animation is done on the 5 field paper, but the 6½ field paper is used when a larger set-up is indicated as it permits more freedom of action and also lends to the animator's convenience in handling a great many characters in a scene, or in certain complicated set-ups.

Camera moves are termed as "trucks." For the effect of the camera moving toward a character from a long-shot to a close-up, the camera is lowered toward the drawing at a fraction of an inch per exposure, from a large field to a smaller one. For the effect of moving away, the procedure is reversed. By means of a "field chart," on which the various sizes of fields are indicated by number and measurement, the animator can call for a certain sized field at any place on his drawing, to suit the movements of his character, and indicates on the exposure-sheet in the "Camera Instructions" column, the size field he desires, and at what point to start trucking to another field position. The field positions are computed by measuring so many units left, right, up or down from the center of the paper. A camera movement to the right is termed as a move "east," to the left, "west," up from center is "north," and down is "south." All field sizes are judged according to the dramatic and compositional requirements of the action. The animator is careful to maintain a good pictorial balance in his scene by the proper size and placement of the camera-field, and to utilize camera-moves freely and flexibly in following the action.

Sometimes, the camera might be called upon to create certain effects in conjuction with the action, such as the rocking of a boat. In this case, the camera is simply tilted during the process of photographing, at a certain angle to the right or left of center at so many degrees per exposure. Or, the shattering, earth-shaking effect of an explosion might be created by calling for several slight changes in the position of the camera-field, using only a frame or two of film for each new position. Certain trick speed effects are made possible by the movement of the camera alone; for example, the effect of approaching some object at a rapid rate, from the character's viewpoint. In this case, the camera would start at a long shot, and truck rapidly down toward the background.

It can be seen, in view of these few simple examples, that just about any type of camera move utilized in live-action can be approximated in cartoons. About the only exceptions would be certain types of complicated dolly-shots, involving great changes of background and perspective, such as following a character up stairs, around corners, in and out of doors, etc. Such moves require that various parts of the background change size, shape and perspective during the move, which would mean, in cartoons, that the background would have to be animated in order to accomplish these size and perspective changes. In some instances it has been necessary to animate the background, but the results are seldom satisfactory, as the animation of rigid objects has a tendency to jitter. Besides, it's necessary to paint the animated background on celluloid, the same as any other animation, with flat tones, presenting an effect of pictorial inconsistency with the rest of the backgrounds in the picture which are handled in normal halftones.

Consequently, the tendency is to steer clear of such camera moves when planning the staging of the picture, and it's generally found that the avoidance of such moves doesn't necessarily impose any limitations on the pictorial development of the picture.

Another technical factor for the animator to consider, aside from his drawings, are the various "cell levels" of the scene. A "cell level" can be best explained as follows: the set-up of an animated cartoon while being photographed consists of the background, over which are superimposed four sheets of celluloid with the inked and painted characters on them. The position of each sheet in relation to the background is termed as a "cell level." Thus, the cell on the bottom of the pile next to the background is the 1st level, the one on top, 4th. The purpose of these levels is to provide a convenient way to handle all of the various characters or effects in action in a scene. It's obvious that it wouldn't be practical or even possible to draw all of the action of the average scene on one paper and ink and paint them all onto one "cell." Some action moves entirely independent of the rest, while other elements in the scene can remain static for various lengths of time. So, it's necessary to give each separate action a cell level of its own to operate on.

Of course, in a simple scene, every cell level won't have action on it. In the

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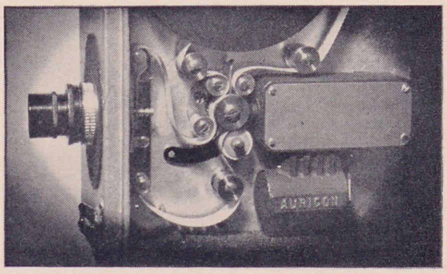

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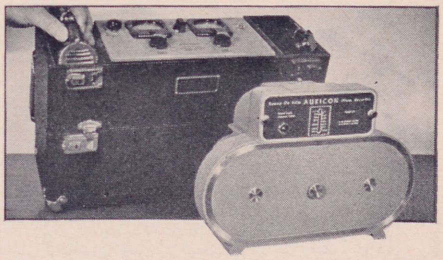

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case of just one character, only one level is likely to be employed. However, during the process of shooting the finished scene in Technicolor, four cells are kept over the background at all times, even if only one or two have action on them. This is to maintain an even density of exposure, as the addition or lack of just one thickness of celluloid on the background will darken or lighten it slightly.

It's part of the animator's job to break down the various actions in his scene and consign each to a definite cell level. Action that remains in the background or that works under other action will be put on a lower cell level, and the reverse holds for action that works in front of other characters. Action can move from one cell level to another, but this isn't advisable unless absolutely necessary, as a slight jump in color usually results from the change in level.

If there's some non-moving prop in the foreground—a tree, rock, stump, bush, etc.—behind which the action of the scene works at some time, it is placed on the top cell level and termed as an "overlay." This prop, portion of the terrain, or whatever it might be, is painted in the same fashion as the background, in the same tones and colors, either in oils directly on the cell, or on regular water-color paper, then cut out and cemented onto the cell. The purpose of an overlay is to increase the pictorial effectiveness of the scene by providing it with a feeling of depth and third-dimension. It can also help to "frame" the scene when a good composition is wanted.

All of these various technical factors have to be taken into consideration and allowed for by the animator while working out his action, but they constitute no real problems as they're all part of the routine functionings of modern animation mechanics.

The animator is never obliged to create every drawing that finally constitutes the complete action. Only in certain instances will he even go so far as to make every other drawing. In no case will he ever make a finished drawing, but leaves all his roughs to be "cleaned up" by his assistant. There's a good reason for this, as it would slow him down unnecessarily to take time to finish every drawing and consequently he'd lose some of the spontaneity that's a necessary part of animation.

Usually, he'll draw only the key poses, or "extremes" of the action, leaving the supplementary poses, or "in-betweens" to his assistant or an inbetweener. These "extremes" represent salient spots in the course of the action where a definite change in the position of the character takes place. They can be many frames or just two or three frames apart, depending on the type of action. These "extreme" drawings, if flipped in their proper sequence, should tell the story of the action in a rough but comprehensive way, without benefit of intermediates.

Some representative examples of an animator's rough "extremes" are illustrated from the Bambi scene mentioned earlier. They comprise exactly 1 foot and 12 frames of film, or what eventually became 17 complete drawings when the roughs were inbetweened and cleaned-up. The action represents Bambi going into a jump forward—showing the act of drawing back, or anticipating the action, then into the first jump.

It might be noted that while 1 foot and 12 frames of film were used for the action, only 17 drawings were necessary to portray it. Not always is a new drawing made for every frame of film. Most action can be successfully handled on "2's," that is, exposing each drawing for two frames of film. The eye can't detect the difference in the case of the average medium-paced or slow action. In the case of very fast action, the drawings are generally shot on "1's"—each drawing exposed for one frame. The reason for this is because, in fast action, the drawings will be spaced further apart than in a slower action, and, if shot on "2's," a slight jerkiness would be apparent. By making an additional drawing, or inbetween, the action presents a smoother effect. Of course, there might be cases where a fast, wild, jerky effect is desired. Then, the action is shot on 2's, or even 3's.

The first part of the action of Bambi jumping—the anticipation— was shot on 2's, but the last part, where the action became faster, was exposed one frame to a drawing.

Illustrated are the animator's original rough extremes of the action—Drawings 49, 55, 61, 71, 73 and 76. They represent his idea of the important poses in the course of the action. All poses between these extremes, Nos. 51, 53, 57, 59, etc., are simply inbetweens—supplementary positions leading from one extreme to the next. The animator just drew the extremes, then turned them over to an assistant to be inbetweened. Of course, he had to indicate on his exposure-sheet how he wanted these extremes timed—how many frames apart they were to be shot.

The assistant spotted his rough inbetweens in correct relation to the pattern of the animator's extremes. This job, while not as creative as the animator's, still calls for a definite ability to analyze action. The rough inbetweens resemble the extremes in drawing style, for the sake of consistency.

When all of the drawings in the scene are completed by this rough inbetween process, the animator sends the whole

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works out to the camera department for a "first rough" test. Even though there is precious little guesswork connected with animation, the animator cannot know exactly how his animation moves until the drawings are photographed on film in the proper timing. Experience and his knowledge of animation mechanics tells him that certain combinations of drawings arranged according to a certain timing will produce certain actions, but each new scene presents new problems, with accompanying elements of doubt as to the exact outcome of the animation. But this element of doubt grows less and less with experience, and the average animator today doesn't find himself too greatly surprised when he sees how his animation looks after the camera gets hold of it.

All animation tests are shot in negative—so that the black pencil lines appear as white on a dark field. There are a couple of good reasons for using negative. For one, the action can be studied quite as well as in a print, and so a great deal of money is saved that would otherwise go towards making positive prints. Another reason is that the white line drawings on a dark background is a lot easier to look at on the screen than the normal black drawings on the glaring white paper. Particularly if these animation tests are looked at for hours at a time, as is the case when they're being checked by the director in a projection room.

The projection rooms in which such tests are looked at are called "sweat-boxes" at the Disney studio. The name has more of a figurative meaning today, but a few years ago the term was literal as well. "Sweat-box" was the title hung on the original room in which animation tests were studied in the old Disney Hyperion Ave. studio, many years ago. It was a closet about three feet wide and six long, in which stood a small projecting Moviola on a stand. The animators would run their tests on this machine for the benefit of themselves and the director, and by the time the animator, the director, the layout-man, a story man and maybe an assistant or two crowded into this space originally intended to house nothing much larger than an umbrella, the name "sweat-box" quickly suggested itself for obvious reasons. Some of these early sweat-boxes could have provided scientists with interesting research material regarding the ability of the human system to function for hours in an atmosphere composed of carbon-dioxide, cigarette smoke, and second-hand oxygen.

More recently, air-conditioning has altered the physical aspects of the sweat-box, but the figurative sense still remains. Particularly if an animator's tests don't look so hot to the director, who is likely to tell him so in no uncertain terms.

The animation tests are cut into test reels, in sync with the sound-effects and dialog. In the sweat-box, these reels can be run at any speed forward or backward for a minute study of the action, dialog sync, camera moves, etc. All of the elements that go into the picture are checked in this fashion and changes and improvements outlined. Changes in the timing of the action are suggested, scenes are shortened or lengthened to suit, a scene might be added, or one taken out, or even some story alterations instigated. Primarily, though, the purpose of "sweat-boxing" is to check on the animator's work, and to okay it so he can move it one step further through production.

* * *

(In the next installment, further steps in the animation process will be explained—"cleaning-up" the roughs, inbetweening, preparing the drawings for inking as well as other technical details concerned with animation mechanics.)

Russia

(Continued from Page 249)

ists in the field, as we have done in regard to sound movies.

In the Soviet Union, as in many other countries, we played around with the so-called "three dimensional movies." After experimenting with all the known and unknown methods of screen viewing with special eyeglasses, as for instance the anaglyph method, the polarizing method, eyeglasses with shutters, etc., we came to the conclusion that none of the methods based upon the use of eyeglasses could have any practical application. We would rather equip our theatres instead of our audiences.

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* See AMERICAN CINEMATOGRAPHER for May, 1941, Pp. 212-213.

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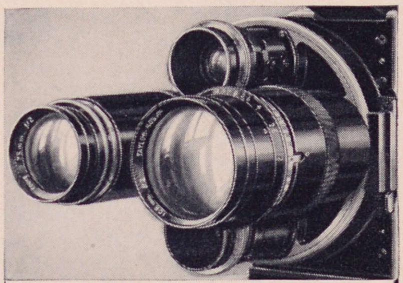

LENSES for Today and the Future

B&H-THC Ciné Lenses are not merely ideally corrected for today's monochrome and color work; their design anticipates the possibility of future improvements in film emulsions. Thus they are long-time investments. Write for details.

BELL & HOWELL COMPANY
Exclusive world distributors
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RENTALS SALES SERVICE

MITCHELL Standard, Silenced, N. C., Hi-Speed, Process, and Eyemo Cameras. **BELL & HOWELL**

Fearless Blimps and Panoram Dollys—Synchronizers—Moviolas
35mm Double System Recording Equipment

WE SPECIALIZE in REPAIR WORK on MITCHELL and BELL & HOWELL CAMERAS

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to create with the three-dimensional films.

A special movie theatre was built in Moscow for showing stereoscopic films without any eyeglasses. The impression was so strong that the spectators forgot they were in a theatre. Just imagine seeing pigeons flying around almost in the middle of the hall or cigarette smoke spreading over your head. Some spectators unconsciously raised their hands to catch the pigeons!

We attach considerable importance to stereoscopic movies without the use of eyeglasses. The work done thus far in this respect is only the beginning.

We believe that Dr. Ivanov's method has a bright future. However, his invention is only in the experimental stages and requires some development to simplify the screen, increase the brilliancy. etc.

We cherish the idea of combining the stereoscopic images on the screen with stereoscopic sound, based upon the developments of the RCA and Western Electric laboratories.

Ten years ago we had about 20,000,000 projection installations and only 2 or 3 percent were sound, but now we have close to 40,000 motion picture installations and 80 percent are sound. These are of a great variety. In addition to regular movie theatres we also have a tremendous amount of portable equipment.

We pay considerable attention to the cultural requirements of our villages. Whatever is done in this respect in our cities is immediately carried out to our villages. Many of the latter are located far from railroad lines so that the equipment, together with the films, must be transported on carts, trucks and special automobiles. For some localities having no electricity, portable power installations also have to be transported.

Each village and collective farm desires its own motion picture installation, and it is quite difficult to satisfy the demand for equipment and films. In order to meet the demand we have a great amount of portable equipment to enable us to transport both equipment and films from place to place.

There are some places in Soviet Union, for example, the Caucasian Mountains, which for certain periods of the year (in winter and early spring), are not accessible either on horses or automobiles. To these places the men and equipment are carried over in planes.

Our Red Army like the movies too. For them we provide special vehicles equipped with motion picture installations, radios, microphones and phonographs. These motion picture vehicles also have special equipment for showing pictures in the military camps in the daytime without the need for darkened places.

The average number of prints made from each new film is from 500 to 1000. And often this amount is not enough and we have to make reprints.

Such a great volume of prints required, made it necessary to prolong the life of the films. We have developed special treatments for the care of prints, making it possible to show pictures from eight to ten times more than before.

The amplifying and acoustical equipment of our theatres was of an obsolete type which made it difficult to obtain high quality reproduction. Two years ago we designed some modern amplifiers which are now being installed in the theatres.

I believe one of these amplifiers is of particular interest and therefore wish to say a few words about it.

Professor P. Timofeev from Moscow, and engineer B. Kubetzki (Leningrad) have designed a secondary-emission photo-tube multiplier, which has made possible the building of a very compact amplifier. The electronic beam of Professor Timofeev's photo-tube is focused electrostatically. Its sensitivity is about 500 milliamperes per lumen; the noise-level is around minus 55-60 db.; it has an absolutely flat frequency-response curve for the audio frequency range; total voltage applied 500 volts.

This photo-multiplier substitutes the photo-tube and preamplifies. Depending upon the size of the theatre, we connect a corresponding power output stage, usually consisting of two tubes (push-pull circuit). This is a light, compact amplifier, easy to service.

Another important development consists of a high-pressure gas lamp with the following characteristics:

Voltage: 120 A.C. or D.C.
Power: 250-300 watts.
Gas pressure in operation: 80-100 atmospheres.

The brilliancy of this lamp is equivalent to a 3 K.W. arc lamp. Average life of the lamp—200 hours.

We have also begun to produce new loudspeakers with permanent magnets, selenic rectifiers, movie screens, and so forth.

In addition to the problems already mentioned, which we have been working on for the last few years, there will be many more to solve in the very near future.

The major and immediate problems to be solved by our institutes, laboratories and factories are: quality improvements in sound-recording, printing, and developing, and further development of color and stereoscopic movies.

I hope you in American industry will continue to help us as you have done in the past.

We are absolutely confident, with the considerable numbers of experienced personnel, and the help of the new powerful Soviet Union industry, we will speedily overcome these problems.

Not far distant that hour when two great nations, the United States and the Soviet Union, will finally crush our common enemies, fighting against them side by side.

Then, under the bright light of new progress, the American and Soviet cinematographers will solve new problems, also working side by side. END.

CLASSIFIED ADVERTISING

FOR SALE

THE WORLD'S LARGEST VARIETY OF Studio and Laboratory equipment with latest improvements as used in Hollywood at tremendous savings. New and Used. Mitchell, Bell-Howell, Akeley, De Brie, Eyemo, animation process cameras, lenses, color magazines, adaptors, lighting equipment, silencing blimps, dollies, printers, splicers, moviolas, motors, light-testers, gear boxes, synchronizers. Guaranteed optically and mechanically perfect. Send for bargain catalogue. Hollywood Camera Exchange. 1600 Cahuenga Blvd., Hollywood, Calif.

FOX MOVIETONE 35mm PICTURE-SOUND RECORDING CAMERA, $795.00; OPTICAL REDUCTION PRINTER 35/16mm, $995.00; BERNDT AURICON 16mm SOUND RECORDING SYSTEM; VARIABLE AREA WITH NOISE REDUCTION, like new, $595.00; TOTALLY ENCLOSED 16mm FILM PHONOGRAPH, brand new, $750.00; AKELEY AUDIO CAMERA at great sacrifice. BIGGEST Studio and Laboratory BARGAIN BULLETIN in the Industry—free! S.O.S. CINEMA SUPPLY CORPORATION, NEW YORK.

WE BUY, SELL AND RENT PROFESSIONAL AND 16mm EQUIPMENT, NEW AND USED. WE ARE DISTRIBUTORS FOR ALL LEADING MANUFACTURERS. RUBY CAMERA EXCHANGE, 729 Seventh Ave., New York City. Established since 1910.

BELL-HOWELL STANDARD 35MM CAMERA, single system sound. Box 996, American Cinematographer.

IMMEDIATE DELIVERY NEW AND USED Sound on Film Recorders—Recording Amplifiers—Galvanometers—Michrophones—Cable Connectors—Synchronous-Selsyn D.C. Interlock Camera and Recorder Motors—Write for Quotations. BLUE SEAL SOUND DEVICES, INC., 1600 Broadway, New York City.

FOR SALE

IMPROVED DUPLEX 35MM PRINTER, with two Bell-Howell Cams and Shuttles. Perfect Registration for Color or Black and White, also process plates. Bell-Howell Standard Silenced Camera; Bell-Howell Model Continuous Silent Printer; Sound and Silent Moviolas. Equipment slightly used at a big saving. Hollywood Camera Exchange, 1600 Cahuenga Blvd., Hollywood.

FOR SALE—Akeley camera, good condition, 5 lenses 1 to 12 inch, reasonable. Box 997 American Cinematographer.

WANTED

WE PAY CASH FOR EVERYTHING PHOTOGRAPHIC. Write us today. Hollywood Camera Exchange. 1600 Cahuenga Blvd., Hollywood.

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ALSO LABORATORY AND CUTTING ROOM EQUIPMENT
CAMERA EQUIPMENT COMPANY
1600 BROADWAY, NEW YORK CITY
CABLE: CINEQUIP

16MM Sound Projector, state make, model, condition and price. George Sommers, 1600 N. Cahuenga Blvd., Hollywood, California.

EYEMO CAMERAS — Cooke Lenses — all focal lengths. We pay highest prices. Camera Mart, 70 West 45th Street, New York City.

WANTED: 2 OR MORE MAGAZINES FOR NEWMAN SINCLAIR MODEL A. AUTO KINE CAMERA. BOX 998, AMERICAN CINEMATOGRAPHER.

DESIGN AND DEVELOPMENT ENGINEER, BY old established Chicago Mfg. Must be thoroughly versed in 8 and 16mm. motion picture projectors and cameras. In reply, state past experience, complete personal facts, including Draft Status. Must have proof of American Citizenship. A real opportunity. Permanent. Box 999, American Cinematographer.

GOOD MOVIES

Sure as Shootin'

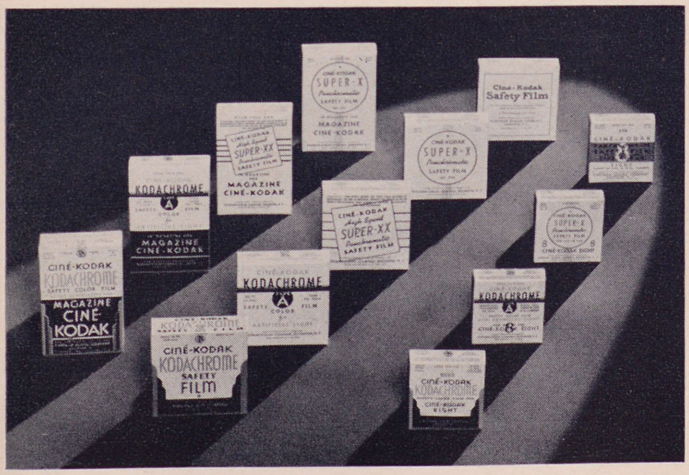
NO EXTRAVAGANT claims are made for Ciné-Kodak Film. They never have been. Yet most movie makers use Ciné-Kodak Film. They always have.

Why?

Because they never have to worry about Ciné-Kodak Film. They never wonder what it will do—they *know* what it will do. They never send off a film for processing, and say, "I know I had these scenes in focus—and I know my exposure was on the button. Now if the film will only do its part I'll get my pictures." They *know* just what each Ciné-Kodak Film will do—and do superbly well.

KODACHROME—for 8-mm. and 16-mm. cameras. Non-movie makers marvel at its realism and beauty. "How do you ever learn to make color movies like those?" they ask. Yet movie makers know that Kodachrome movies are as easy as black-and-white. Expose full-color Kodachrome carefully in any standard movie camera —and the *film* does the rest.

CINÉ-KODAK SUPER-X "PAN"—Another remarkable film for 8-mm. and 16-mm. cameras. Fast. Fine-grained. Uniform, as all Ciné-Kodak Films are uniform. Small wonder most outdoor and indoor black-and-white movies are made on Super-X "Pan."



CINÉ-KODAK SUPER-XX "PAN"—for 16-mm. cameras. This special-duty film is so fast that it overexposes sunlit scenes, even at $f/16$. But in weak daylight and under minimum artificial light it reaches out and gets the movies you'd otherwise miss. Yet there's nothing unpredictable about its speed. Expose it by guide or meter, and once more—there are your movies, just as good as you knew they would be.

CINÉ-KODAK EIGHT "PAN"—the film that first made 8-mm. movies possible, then popular. Here's another film you can count on. It is the same good film it was when introduced. Though it is not as fast as "Super-X," thousands of rolls of sparkling 8-mm. movies bear potent testimony to the value of Ciné-Kodak Eight "Pan."

Lastly—**CINÉ-KODAK SAFETY "PAN"** for 100-foot 16-mm. cameras. Many cinamateurs prefer this low-cost black-and-white film quite apart from price consideration.

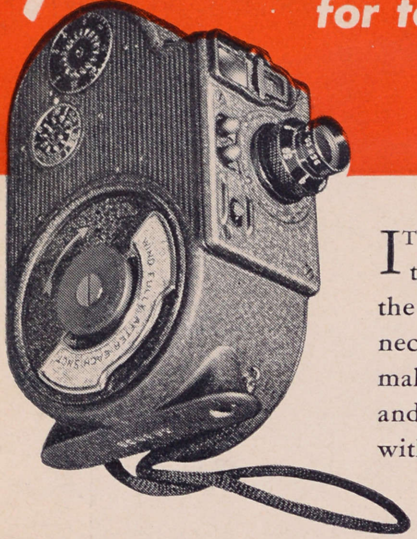
Right there is perhaps the best testimonial to Ciné-Kodak Films—any and all of them. The devotees of each of the five popular emulsions feel that their own favorite Ciné-Kodak Film is the best film they can buy.

EASTMAN KODAK COMPANY

ROCHESTER, N. Y.

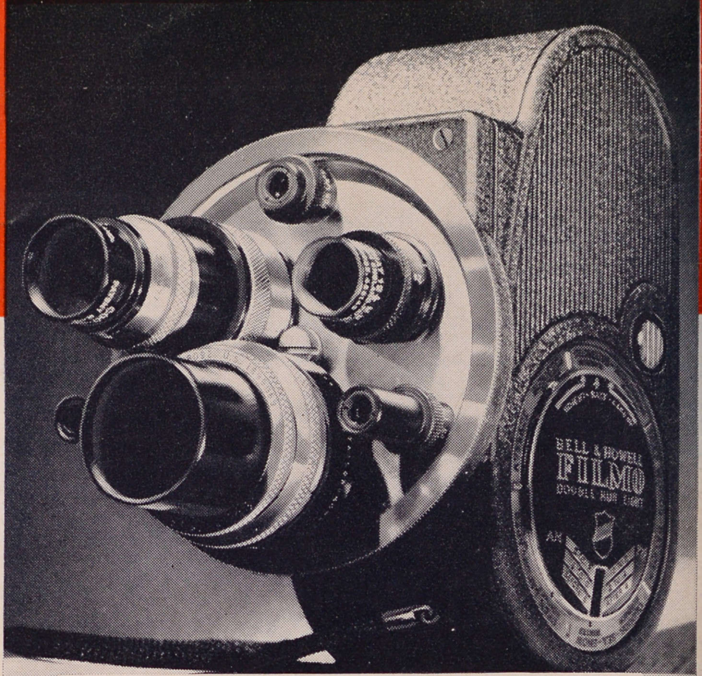
Filmo 8mm. CAMERAS

for top-quality movies at low cost . . .



Filmo "Companion" 8. *Small and compact. Easy to load—film drops into place—no sprockets to thread. Makes superb black-and-white or full-color movies. Lifetime guarantee. Priced from $52.80*

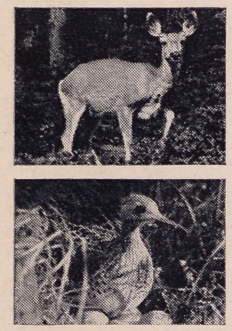
IT TAKES a precision-built camera to make top-quality movies. And the smaller the film, the greater the necessity for this precision. So B&H makes no compromises . . . designs and builds Filmo 8mm. Cameras with the same attention to detail that characterizes B&H professional equipment. Thus a Filmo 8 assures you that *what you see, you get.*



Filmo Turret 8. *Mounts three lenses and their matching finder objectives, for instant lens shifting. Four speeds include slow motion. Critical focuser optional. With one lens, from $116.80*

How Your Magazine-loading Filmo Can Be Modernized

For Quick Lens Shift ...a TURRET HEAD!



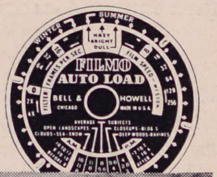
Movie opportunities like these won't wait while you fumble

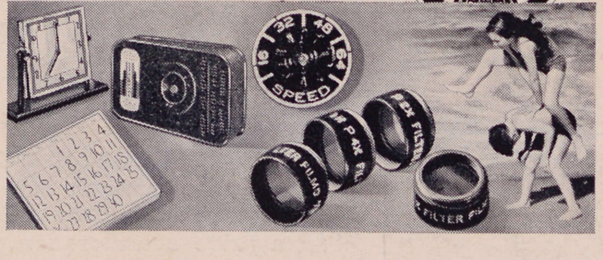
Swing your turret to a telephoto lens in an instant—and get the shot!

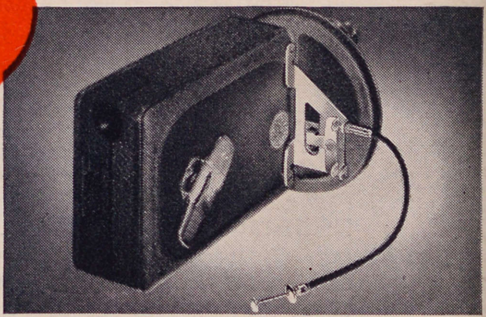
By having this three-lens turret head installed on your single-lens Filmo 141 or Auto Load 16mm. Camera, you'll be prepared to capture those opportunities that pass while you are interchanging lenses. Installation (at Chicago factory only) includes the improved viewfinder of the latest Filmo Auto Master. Price, $85.

NEW 6-WAY EXPOSURE GUIDE

Offers new ease in determining correct lens diaphragm setting. Like your present guide, it provides for seasons, hours of the day, and types of subjects. *In addition,* it permits setting for film emulsion speeds, color filters, and camera operating speeds. Including installation, $4.50.







Cable Release on Filmo Auto Master Camera

For Critical Work ...a CABLE RELEASE!

When doing critical work with a telephoto lens, or single-frame exposure (animation) work with any lens, it may be difficult to avoid jarring the camera perceptibly if you manipulate the starting button in the normal way. With the B&H Cable Release you operate the starting button without touching the camera. The 6-inch, non-locking cable is standard; may be replaced with longer cables. Install it yourself. For Auto Load and Model 141, $3.45; for Auto Master, $3.75.

New, Moneysaving Maintenance Service

During this period when replacement might be difficult, you'll want to be especially careful to keep your Filmo Camera and Projector in fine condition. To encourage this care, we have established standard, moderate charges for each of three classes of service on each camera and projector model. See your Filmo dealer for details and prices, or send the coupon. Bell & Howell Company, Chicago; New York; Hollywood; Washington, D. C.; London. *Estab. 1907.*

Send Coupon for Full Details

BELL & HOWELL COMPANY
1848 Larchmont Ave., Chicago, Ill.

Please send additional information about: ( ) Filmo 8mm. Cameras; ( ) modernization of Filmo 141, Auto Load, and Auto Master 16mm. Cameras; ( ) standard-price service on

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